CCD-TR317/TR517
CCD-TRV17/TRV37/TRV47/TRV57/
TRV57P/TRV67/TRV87/TRV87P
RMT-708

SERVICE MANUAL

Self Diagnosis Supported model

Ver 1.4 2004. 05

Handycam
Handycam Vision™
video8 XR
video Hi8
video Hi8 XR
InfoLITHIUM™ L SERIES

Photo : CCD-TRV87

US Model
CCD-TR517/TRV37/TRV57/TRV67/TRV87

Canadian Model
CCD-TR517/TRV17/TRV37/TRV57/TRV87

E Model
CCD-TR317/TR517/TRV37/
TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P

Hong Kong Model
Korea Model
CCD-TR317/TRV47/TRV57/
TRV67/TRV87

Brazilian Model
CCD-TR317/TR517/TRV37/TRV67

Argentina Model
CCD-TR517/TRV37/TRV67

Tourist Model
CCD-TRV47/TRV57/TRV67/TRV87

B200 MECHANISM

For MECHANISM ADJUSTMENT, refer to the “8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ ” (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning FM system

Audio recording system
Rotary heads, FM system

Video signal
NTSC color, EIA standards

Usable cassette
8mm video format cassette
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P: Standard 8
CCD-TRV67/TRV87/TRV87P: Hi8 or standard 8

Recording/playback time (using 120 min. cassette)
SP mode: 2 hours
LP mode: 4 hours

Fastforward/rewind time (using 120 min. cassette)
Approx. 5 min.

Viewfinder
Electric viewfinder
CCD-TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P: monochrome
CCD-TR517: color

Image device
CCD-TR317/TR517/TRV17/TRV37/TRV47: 1/6 inch CCD (Charge Coupled Device)
CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P: 1/4 inch CCD (Charge Coupled Device)
CCD-TR317/TR517/TRV17/TRV37/TRV47: Approx. 270,000 pixels (Effective: Approx. 250,000 pixels)
CCD-TRV57/TRV57P/TRV67: Approx. 320,000 pixels (Effective: Approx. 200,000 pixels)
CCD-TRV87/TRV87P: Approx. 470,000 pixels (Effective: Approx. 300,000 pixels)

Lens
Combined power zoom lens
Filter diameter 1 7/16 in. (37 mm)
CCD-TRV17: 20× (Optical), 80× (Digital)
CCD-TR317/TR517/TRV37/TRV47: 20× (Optical), 200× (Digital)
CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P: 20× (Optical), 360× (Digital)

Focal length
5/32 - 2 7/8 in. (3.6 - 72 mm)
When converted to a 35 mm still camera
CCD-TR317/TR517/TRV17/TRV37/TRV47: 2 - 40 6/8 in. (51.8 -1036 mm)
CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P: 1 5/8 - 32 3/8 in. (41 - 820 mm)

Color temperature
Auto

Minimum illumination
CCD-TR317/TR517/TRV17/TRV37/TRV47: 1 lux (F 1.4)
CCD-TRV57/TRV57P/TRV67: 0.4 lux (F 1.4)
CCD-TRV87/TRV87P: 0.6 lux (F 1.4)
0 lux (in the NightShot mode)*
* Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/output connectors

S video input (CCD-TRV87/TRV87P only)/ output (CCD-TRV67/TRV87/TRV87P only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.286 Vp-p, 75 ohms, unbalanced

Video input (CCD-TRV87/TRV87P only)/ output
Phono jack, 1 Vp-p, 75 ohms, unbalanced

Audio input (CCD-TRV87/TRV87P only)/ output
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67: Monaural, phone jack, 327 mV
CCD-TRV87/TRV87P: Phono jacks (2: stereo L and R) 327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms

RFU DC OUT
Special minijack, DC 5V

Headphone jack (CCD-TRV87/TRV87P only)
Stereo minijack (ø 3.5 mm)

Earphone jack (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67 only)
Monaural minijack (ø 3.5 mm)

LANC control jack
Stereo mini-minijack (ø 2.5 mm)

MIC jack
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67: Monaural minijack (ø 3.5 mm)
CCD-TRV87/TRV87P: Stereo minijack (ø 3.5 mm)

— Continued on next page —

8 VIDEO CAMERA RECORDER
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P

Hi8 VIDEO CAMERA RECORDER
CCD-TRV67/TRV87/TRV87P

MICROFILM

SONY®

LCD screen

(CCD-TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/
TRV87/TRV87P only)

Picture
2.5 inches measured diagonally
2 × 1 1/2 in. (50.3 × 37.4 mm)

Total dot number
61,600 (280 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)

Average power consumption (when using the battery pack)
During camera recording using
CCD-TR317: 2.3W
CCD-TR517: 1.9W
LCD
CCD-TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67:
2.7W
CCD-TRV87/TRV87P: 2.8W
Viewfinder
CCD-TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67:
2.3W
CCD-TRV87/TRV87P: 2.4W

Operating temperature
32 °F to 104 °F (0 °C to 40 °C)

Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)

Dimensions (approx.)
4 1/8 × 4 1/4 × 8 3/8 in.
(102 × 106 × 212 mm) (w/h/d)

Mass (approx.)
CCD-TRV47: 1 lb 13 oz (830 g)
CCD-TRV17/TRV37/TRV57/
TRV57P/TRV67/TRV87/
TRV87P: 1 lb 14 oz (850 g)
CCD-TR317/TR517:
1 lb 10 oz (740 g)
excluding the battery pack, lithium battery, cassette and shoulder strap
CCD-TRV47: 2 lb 2 oz (970 g)
CCD-TRV17/TRV37/TRV57/
TRV57P/TRV67/TRV87/
TRV87P: 2 lb 3 oz (990 g)
CCD-TR317/TR517:
1 lb 15 oz (880 g)
including the battery pack NP-F330, lithium battery CR2025, cassette and shoulder strap

Supplied accessories
See page 2.

AC power adaptor

Power requirements
100 - 240 V AC, 50/60 Hz

Power consumption
23 W

Output voltage
DC OUT: 8.4 V, 1.5 A in operating mode

Operating temperature
32 °F to 104 °F (0 °C to 40 °C)

Storage temperature
–4 °F to +140 °F (–20 °C to +60 °C)

Dimensions (approx.)
5 × 1 9/16 × 2 1/2 in.
(125 × 39 × 62 mm) (w/h/d)
excluding projecting parts

Mass (approx.)
9.8 oz (280 g)
excluding power cord

Battery pack

Output voltage
DC 7.2 V

Capacity
5.0 Wh

Dimensions (approx.)
1 9/16 × 13/16 × 2 7/8 in.
(38 × 21 × 71 mm) (w/h/d)

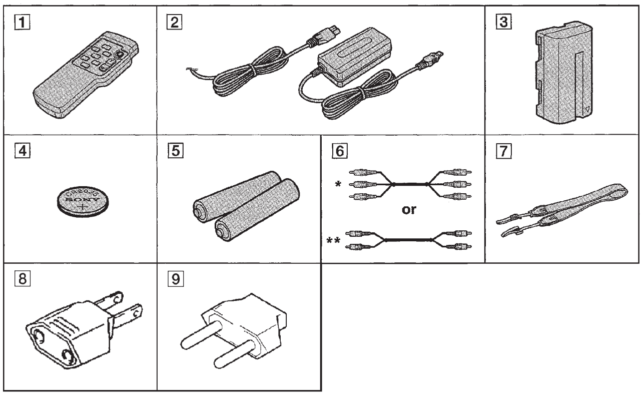
Mass (approx.)
3.4 oz (95 g)

Type
Lithium ion

Design and specifications are subject to change without notice.

• SUPPLIED ACCESSORIES

Check that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1)
CCD-TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Power cord** (1)

3 **NP-F330 battery pack** (1)

4 **CR2025 lithium battery** (1)
The lithium battery is already installed in your camcorder.

5 **Size AA (R6) battery for Remote Commander** (2)
CCD-TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P

6 **A/V connecting cable** (1)
* : CCD-TRV87/TRV87P
** : CCD-TR317/TR517/TRV17/
TRV37/TRV47/TRV57/
TRV57P/TRV67

7 **Shoulder strap** (1)

8 **2-pin conversion adaptor** (1)
CCD-TR317: E/TR517:E/
TRV37: E/TRV47: E/TRV57: E/
TRV57P/TRV67: E/TRV87: E/
TRV87P

9 **2-pin conversion adaptor** (1)
CCD-TRV47: JE/TRV57: JE/
TRV67: JE/TRV87: JE

- Abbreviation
  HK : Hong Kong model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

**ATTENTION AU COMPOSANT AYANT RAPPORT
À LA SÉCURITÉ!**

LES COMPOSANTS IDENTIFÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈSES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPÉMENTS PUBLIÉS PAR SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Table for difference of function

Model	CCD-TR317	CCD-TR517	CCD-TRV17	CCD-TRV37	CCD-TRV47	CCD-TRV57	CCD-TRV57P	CCD-TRV67	CCD-TRV87	CCD-TRV87P	Remark
Destination	E,HK,KR,BR	US,CND,E,BR,AR	CND	US,CND,E,BR,AR	E,HK,KR,JE	US,CND,E,HK,KR,JE	E	US,E,HK,KR,BR,AR,JE	US,CND,E,HK,KR,JE	E	
Remote commander					RMT-708	RMT-708	RMT-708	RMT-708	RMT-708	RMT-708	RMT-708: with IC301 of MA-374/375 board.
8/Hi8	8	8	8	8	8	8	8	Hi8	Hi8	Hi8	Hi8: with S-VIDEO jack.
CCD imager	510H	510H	510H	510H	510H	510H	510H	510H	760H	760H	
CCD imager size (inch)	1/6	1/6	1/6	1/6	1/6	1/4	1/4	1/4	1/4	1/4	
Lens Optical	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	
Digital zoom 1	40×	40×	40×	40×	40×	40×	40×	40×	40×	40×	
Digital zoom 2	200×	200×	80×	200×	200×	360×	360×	360×	360×	360×	
EVF	B/W	Color	B/W	B/W	B/W	B/W	B/W	B/W	B/W	B/W	B/W : with VF-129 board. Color : with VF-141, LB-62 board.
LCD panel (inch)			2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5: with PD-117 board.
LCD, Character	○	○	○	○	○	○	○	○	○	○	
Back light, LCD									○	○	
VTR REC									○	○	
Steady shot						○	○	○	○	○	○: with IC451 of SE-101 board.
DIGITAL EFFECT									○	○	○: with IC203 of VC-234 board.
Photo mode									○	○	○: with IC203 of VC-234 board.
Audio system	Mono	Mono	Mono	Mono	Mono	Mono	Mono	Mono	Stereo	Stereo	
Headphone jack			○	○	○	○	○	○	○	○	○: with J451 of SE-101 board.
Night shot	○	○	○	○	○	○	○	○	SUPER	SUPER	SUPER: with IC203 of VC-234 board.
LASER LINK									○	○	○: with IC751 of VC-234 board.
Video Light			○	○		○	○	○	○	○	○: with VL-29 board.
CD board	CD-239		CD-240								
CF board	CF-66		CF-67								
EJ board	EJ-29		EJ-30								
PD board			PD-117								
MA board	MA-374		MA-375								
PJ board	PJ-99		PJ-100								
SE board			SE-101								
VF board	VF-129	VF-141	VF-129								
LB board		LB-62									
VL board			VL-29			VL-29					

- Abbreviation

CND	: Canadian model	BR	: Brazilian model
HK	: Hong Kong model	AR	: Argentina model
KR	: Korea model	JE	: Tourist model

TABLE OF CONTENTS

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS 7
2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT) 7

SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function 8
2. Self-diagnosis Display 8
3. Service Mode Display 8
3-1. Display Method 8
3-2. Switching of Backup No. 8
3-3. End of Display 8
4. Self-diagnosis Code Table 9

1. GENERAL

Quick Start Guide 1-1
Getting Started 1-1
  Using this manual 1-1
  Checking supplied accessories 1-2
  Step 1: Preparing the power supply 1-2
    Installing the battery pack 1-2
    Charging the battery pack 1-2
    Connecting to a wall outlet 1-3
  Step 2: Inserting a cassette 1-3
Recording – Basics 1-4
  Recording a picture 1-4
  Shooting backlit subjects (BACK LIGHT) 1-5
  Shooting in the dark (NightShot) 1-5
  Superimposing the date and time on pictures 1-5
  Checking the recording
    – END SEARCH/EDITSEARCH/Rec Review 1-5
Playback – Basics 1-6
  Playing back a tape 1-6
  Viewing the recording on TV 1-6
Advanced Recording Operations 1-7
  Recording a still image on a tape
    – Tape Photo recording (CCD-TRV87/TRV87P only) 1-7
  Using the wide mode 1-8
  Using the fader function 1-8
  Using special effects – Picture effect 1-9
  Using special effects
    – Digital effect (CCD-TRV87/TRV87P only) 1-9
  Using the PROGRAM AE function 1-10
  Adjusting the exposure manually 1-10
  Focusing manually 1-11
  Superimposing a title 1-11
  Making your own titles 1-11
  Using the built-in light 1-12
Advanced Playback Operations 1-12
  Playing back a tape with digital effects
    (CCD-TRV87/TRV87P only) 1-12
Editing 1-13
  Dubbing a tape 1-13
  Recording video or TV programs
    (CCD-TRV87/TRV87P only) 1-13
Customizing Your Camcorder 1-13
  Changing the menu settings 1-13
  Resetting the date and time 1-15
Additional Information 1-15
  Usable cassettes and playback modes 1-15
  Changing the lithium battery in your camcorder 1-16
  Troubleshooting 1-16
  Self-diagnosis display 1-17
  Warning indicators and messages 1-17
  Using your camcorder abroad 1-18
  Maintenance information and precautions 1-18
Quick Reference 1-19
  Identifying the parts and controls 1-19

2. DISASSEMBLY

2-1. PD-117 BOARD, BACK LIGHT, LIQUID CRYSTAL DISPLAY PANEL (TRV MODEL) 2-2
2-2. FRONT PANEL ASSEMBLY, MA-374/375 BOARD 2-3
2-3. CABINET (R) BLOCK ASSEMBLY 2-4
2-4. MECHANISM DECK-1 2-5
2-5. EVF BLOCK ASSEMBLY 2-6
2-6. VF-129 BOARD (B/W EVF MODEL) 2-7
2-7. VF-141, LB-62 BOARDS (COLOR EVF MODEL) 2-8
2-8. LENS DEVICE, CD-239/240 BOARD 2-9
2-9. DD-134, SE-101 BOARDS 2-10
2-10. VC-234, EJ-29/30 BOARDS, MECHANISM DECK-2 2-10
2-11. CF-66 BOARD, LIQUID CRYSTAL DISPLAY PANEL (TR MODEL) 2-11
2-12. CF-67 BOARD, SPEAKER, PUSH SWITCH (TRV MODEL) 2-12
2-13. LCD BLOCK ASSEMBLY, HINGE ASSEMBLY (TRV MODEL) 2-12
2-14. HARNESS PROCESSING OF THE HINGE ASSEMBLY (TRV MODEL) 2-13
2-15. CIRCUIT BOARDS LOCATION 2-14
2-16. FLEXIBLE BOARDS LOCATION 2-15

3. BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2) 3-3
3-2. OVERALL BLOCK DIAGRAM (2/2) 3-5
3-3. CAMERA/VIDEO BLOCK DIAGRAM (1/2) 3-7
3-4. CAMERA/VIDEO BLOCK DIAGRAM (2/2) 3-9
3-5. VTR/CAMERA CONTROL BLOCK DIAGRAM 3-11
3-6. SERVO BLOCK DIAGRAM 3-13
3-7. MODE CONTROL BLOCK DIAGRAM (1/2) 3-15
3-8. MODE CONTROL BLOCK DIAGRAM (2/2) 3-17
3-9. AUDIO BLOCK DIAGRAM (1/2) 3-19
3-10. AUDIO BLOCK DIAGRAM (2/2) 3-21
3-11. LCD BLOCK DIAGRAM (TRV MODEL) 3-23
3-12. B/W EVF BLOCK DIAGRAM 3-25
3-13. COLOR EVF BLOCK DIAGRAM 3-27
3-14. POWER BLOCK DIAGRAM (1/2) 3-29
3-15. POWER BLOCK DIAGRAM (2/2) 3-31

4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2) 4-1
FRAME SCHEMATIC DIAGRAM (2/2) 4-3
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS 4-5
- CD-239/240 (CCD IMAGER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM 4-7
- VC-234 (CAMERA PROCESSOR)(1/13) SCHEMATIC DIAGRAM 4-9
- VC-234 (Y/C PROCESSOR)(2/13) SCHEMATIC DIAGRAM 4-11
- VC-234 (MEMORY)(3/13) SCHEMATIC DIAGRAM 4-13
- VC-234 (FOCUS/ZOOM MOTOR DRIVE)(4/13) SCHEMATIC DIAGRAM 4-15
- VC-234 (REC/PB AMP)(5/13) SCHEMATIC DIAGRAM 4-17
- VC-234 (LINE IN/OUT)(6/13) SCHEMATIC DIAGRAM 4-19
- VC-234 (IR TRANSMITTER)(7/13) SCHEMATIC DIAGRAM 4-21

- FP-249 (S/T REEL SENSOR, TAPE TOP), FP-356 (TAPE END), FP-355 (TAPE LED) FLEXIBLE BOARD ······ 4-23
- VC-234 (EVR D/A)(8/13) SCHEMATIC DIAGRAM ······ 4-23
- VC-234 (MODE CONTROL)(9/13) SCHEMATIC DIAGRAM ······ 4-25
- VC-234 (SERVO)(10/13) SCHEMATIC DIAGRAM ······ 4-27
- VC-234 (HI CONTROL)(11/13) SCHEMATIC DIAGRAM ······ 4-29
- VC-234 (AUDIO)(12/13) SCHEMATIC DIAGRAM ······ 4-31
- VC-234 (DC IN)(13/13) SCHEMATIC DIAGRAM ······ 4-33
- VC-234 (CAMERA, Y/C PROCESSOR, FOCUS/ZOOM MOTOR DRIVE, REC/PB AMP, LINE IN/OUT, MODE CONTROL, SERVO, HI CONTROL, AUDIO) PRINTED WIRING BOARD ······ 4-35
- CF-66 (USER CONTROL) PRINTED WIRING BOARD ······ 4-39
- CF-67 (USER CONTROL) PRINTED WIRING BOARD ······ 4-43
- CF-66 (USER CONTROL) SCHEMATIC DIAGRAM ······ 4-47
- CF-67 (USER CONTROL) SCHEMATIC DIAGRAM ······ 4-49
- EJ-29/30 (LANC CONNECTOR), SS-9700 (START/STOP SWITCH) PRINTED WIRING BOARDS ······ 4-51
- EJ-29/30 (LANC CONNECTOR) SCHEMATIC DIAGRAM ······ 4-53
- PJ-99/100 (AV IN/OUT) PRINTED WIRING BOARD ······ 5-56
- PJ-99/100 (AV IN/OUT) SCHEMATIC DIAGRAM ······ 5-57
- SE-101 (STEADY SHOT) PRINTED WIRING BOARD ······ 5-59
- SE-101 (STEADY SHOT) SCHEMATIC DIAGRAM ······ 5-61
- VL-29 (VIDEO LIGHT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM ······ 5-63
- MA-374/375 (MIC AMP) PRINTED WIRING BOARD ······ 5-65
- MA-374/375 (MIC AMP)(1/2) SCHEMATIC DIAGRAM ······ 5-67
- MA-374/375 (LASER LINK)(2/2) SCHEMATIC DIAGRAM ······ 5-69
- PD-117 (RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT DRIVE) PRINTED WIRING BOARD ······ 4-71
- PD-117 (RGB LCD DRIVER, TIMING GENERATOR)(1/2) SCHEMATIC DIAGRAM ······ 4-75
- PD-117 (CG LCD DRIVER, BACK LIGHT DRIVE)(2/2) SCHEMATIC DIAGRAM ······ 4-77
- VF-129 (B/W EVF) PRINTED WIRING BOARD ······ 4-80
- VF-129 (B/W EVF) SCHEMATIC DIAGRAM ······ 4-81
- VF-141 (RGB DRIVER, TG) PRINTED WIRING BOARD ······ 4-83
- VF-141 (RGB DRIVER, TG) SCHEMATIC DIAGRAM ······ 4-85
- LB-62 (BACK LIGHT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM ······ 4-87
- DD-134 (DC/DC CONVERTER) PRINTED WIRING BOARD ······ 4-89
- DD-134 (DC/DC CONVERTER) SCHEMATIC DIAGRAM ······ 4-91

4-3. WAVEFORMS ······
4-4. MOUNTED LOCATION ······ 4-9

5. ADJUSTMENTS

1. Before starting adjustment ······ 5-
1-1. Adjusting items when replacing main parts and boards. ······ 5-2
5-1. CAMERA SECTION ADJUSTMENT ······ 5-4
1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION) ······ 5
1-1-1. List of Service Tools ······
1-1-2. Preparations ······
1-1-3. Precaution ······
1. Setting the Switch ······
2. Order of Adjustments ······
3. Subjects ······
1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA ······ 5-9
1. Initializing the D, E, F, 7 Page Data ······ 5-9
2. Modification of D, E, F, 7 Page Data ······ 5-9
3. D Page Table ······
4. F Page table ······
5. E Page Table ······
6. 7 Page Table ······
1-3. CAMERA SYSTEM ADJUSTMENTS ······ 5-19
1. HALL Adjustment ······ 5
2. Flange Back Adjustment (Using Minipattern Box) ······ 5-20
3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away) ······ 5-2
3-1. Flange Back Adjustment (1) ······ 5-21
3-2. Flange Back Adjustment (2) ······ 5-21
4. Flange Back Check ······ 5
5. Picture Frame Setting ······ 5-
6. Color Reproduction Adjustment ······ 5-23
7. Auto White Balance & LV Standard Data Input ······ 5-24
8. Auto White Balance Adjustment ······ 5-25
9. White Balance Check ······ 5-
10. Steady Shot Check (CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P) ······ 5-26
1-4. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (CCD-TR517) ······ 5-27
1. EVF Initial Data Input ······ 5-
2. VCO Adjustment (VF-141 board) ······ 5-28
3. RGB AMP Adjustment (VC-141 board) ······ 5-28
4. Contrast Adjustment (VF-141 board) ······ 5-29
5. Backlight Consumption Current Adjustment (VF-141 board) ······
6. White Balance Adjustment (VF-141 board) ······ 5-30
1-5. MONOCHROME ELECTRONIC VIEWFINEDER SYSTEM ADJUSTMENT (CCD-TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) ······ 5-31
1-5-1. Horizontal Slant Check ······ 5-
1-5-2. Centering Adjustment ······ 5-
1-5-3. Focus Adjustment ······ 5
1-5-4. Aberration Adjustment ······ 5-
1-5-5. Horizontal Amplitude Adjustment (VF-129 board) ······ 5-32
1-5-6. Vertical Amplitude Adjustment (VF-129 board) ······ 5-33
1-5-7. Brightness Adjustment (VF-129 board) ······ 5-33
1-5-8. Horizontal Amplitude, Vertical Amplitude, Focus Check ······

1-6. LCD SYSTEM ADJUSTMENT (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) ········ 5-34
1. LCD Initial Data Input ········ 5-34
2. VCO Adjustment (PD-117 board) ········ 5-35
3. RGB AMP Adjustment (PD-117 board) ········ 5-35
4. Contrast Adjustment (PD-117 board) ········ 5-36
5. COM AMP Adjustment (PD-117 board) ········ 5-36
6. V-COM Adjustment (PD-117 board) ········ 5-37
7. White Balance Adjustment (PD-117 board) ········ 5-37
5-2. MECHANISM SECTION ADJUSTMENT ········ 5-38
2-1. OPERATING WITHOUT CASSETTE ········ 5-38
2-2. TAPE PATH ADJUSTMENT ········ 5-38
1. Preparations for Adjustment ········ 5-38
5-3. VIDEO SECTION ADJUSTMENTS ········ 5-39
3-1. PREPARATIONS BEFORE ADJUSTMENTS ········ 5-39
3-1-1. Equipment to Required ········ 5-39
3-1-2. Precautions on Adjusting ········ 5-40
3-1-3. Adjusting Connectors ········ 5-40
3-1-4. Connecting the Equipments ········ 5-41
3-1-5. Alignment Tape ········ 5-42
3-1-6. Input/Output Level and Impedance ········ 5-42
3-1-7. Recording Mode (Standard 8/Hi8) switching (CCD-TRV87/TRV87P) ········ 5-42
3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT ········ 5-43
1. Initialization of D, E, F, 7 Page Data ········ 5-43
3-3. SERVO SYSTEM ADJUSTMENTS ········ 5-43
1. CAP FG Offset Adjustment (VC-234 board) ········ 5-43
2. Switching Position Adjustment (VC-234 board) ········ 5-43
3-4. VIDEO SYSTEM ADJUSTMENTS ········ 5-44
1. 28 MHz Origin Oscillation Adjustment (VC-234 board) ········ 5-44
2. AFC f_0 Adjustment (VC-234 board) ········ 5-44
3. Filter f_0 Adjustment (VC-234 board) ········ 5-45
4. Y OUT Level Adjustment (VC-234 board) ········ 5-45
5. C OUT Level Adjustment (VC-234 board) ········ 5-46
6. REC Y Current Adjustment (VC-234 board) ········ 5-47
7. REC C/AFM Current Adjustment ········ 5-48
7-1. Preparations only for the PLAYER model ········ 5-48
7-2. REC C Current Check (VC-234 board) ········ 5-48
7-3. REC AFM Current Adjustment (VC-234 board) ········ 5-49
7-4. Processing after completed adjustment only for the PLAYER model ········ 5-49
3-5. IR TRANSMITTER ADJUSTMENTS (CCD-TRV87/TRV87P) ········ 5-50
1. IR Video Carrier Frequency Adjustment (VC-234 board) ········ 5-50
2. IR Video Deviation Adjustment (VC-234 board) ········ 5-50
3. IR Audio Deviation Adjustment (VC-234 board) ········ 5-51
3-6. STEREO AUDIO SYSTEM ADJUSTMENT (CCD-TRV87/TRV87P) ········ 5-52
1. 1.5 MHz Deviation Adjustment (VC-234 board) ········ 5-53
2. 1.7 MHz Deviation Adjustment (VC-234 board) ········ 5-53
3. BPF f_0 Adjustment (VC-234 board) ········ 5-54
3-7. MONAURAL AUDIO SYSTEM ADJUSTMENT (CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67) ········ 5-55
1. 1.5 MHz Deviation Adjustment (VC-234 board) ········ 5-55
2. BPF Adjustment (VC-234 board) ········ 5-55
5-4. SERVICE MODE ········ 5-56
4-1. ADJUSTMENT REMOTE COMMANDER ········ 5-56
1. Using the Adjustment Remote Commander ········ 5-56
2. Precautions Upon Using the Adjustment Remote Commander ········ 5-56
4-2. DATA PROCESS ········ 5-57
4-3. SERVICE MODE ········ 5-58
1. Test Mode Setting ········ 5-58
2. Emergency Memory Address ········ 5-59
2-1. EMG code (Emergency code) ········ 5-59
2-2. MSW codes ········ 5-60
3. Bit Value Discrimination ········ 5-61
4. Input/output selection check ········ 5-61
5. LED, LCD (display window) check ········ 5-61
6. Record of Use check ········ 5-62
7. Switch check (1) ········ 5-62
8. Switch check (2) ········ 5-63
9. Headphone jack check (TRV model only) ········ 5-63

6. REPAIR PARTS LIST

6-1. EXPLODED VIEWS ········ 6-1
6-1-1. FRONT PANEL BLOCK ASSEMBLY AND BATTERY PANEL BLOCK ASSEMBLY ········ 6-1
6-1-2. CABINET (R) BLOCK ASSEMBLY (TRV MODEL) (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) ········ 6-2
6-1-3. CABINET (R) BLOCK ASSEMBLY (TR MODEL) (TR317/TR517) ········ 6-3
6-1-4. LCD BLOCK ASSEMBLY (TRV MODEL) (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) ········ 6-4
6-1-5. CABINET (L) BLOCK ASSEMBLY ········ 6-5
6-1-6. B/W EVF BLOCK ASSEMBLY (TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) ········ 6-6
6-1-7. COLOR EVF BLOCK ASSEMBLY (TR517) ········ 6-7
6-1-8. LENS BLOCK ASSEMBLY ········ 6-8
6-1-9. CASSETTE COMPARTMENT ASSEMBLY ········ 6-9
6-1-10. LS CHASSIS BLOCK ASSEMBLY ········ 6-10
6-1-11. MECHANISM CHASSIS ASSEMBLY ········ 6-11
6-2. ELECTRICAL PARTS LIST ········ 6-12

* Parts reference sheet and color reproduction frame are shown on page 282 and 283.

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

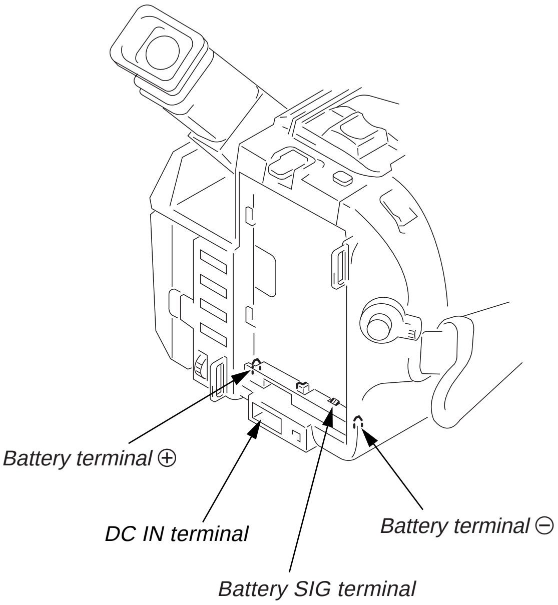
In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power cord (J-6082-223-A), the power is shut off so that the unit cannot operate.
This following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the remote commander switch to the “ADJ” side.

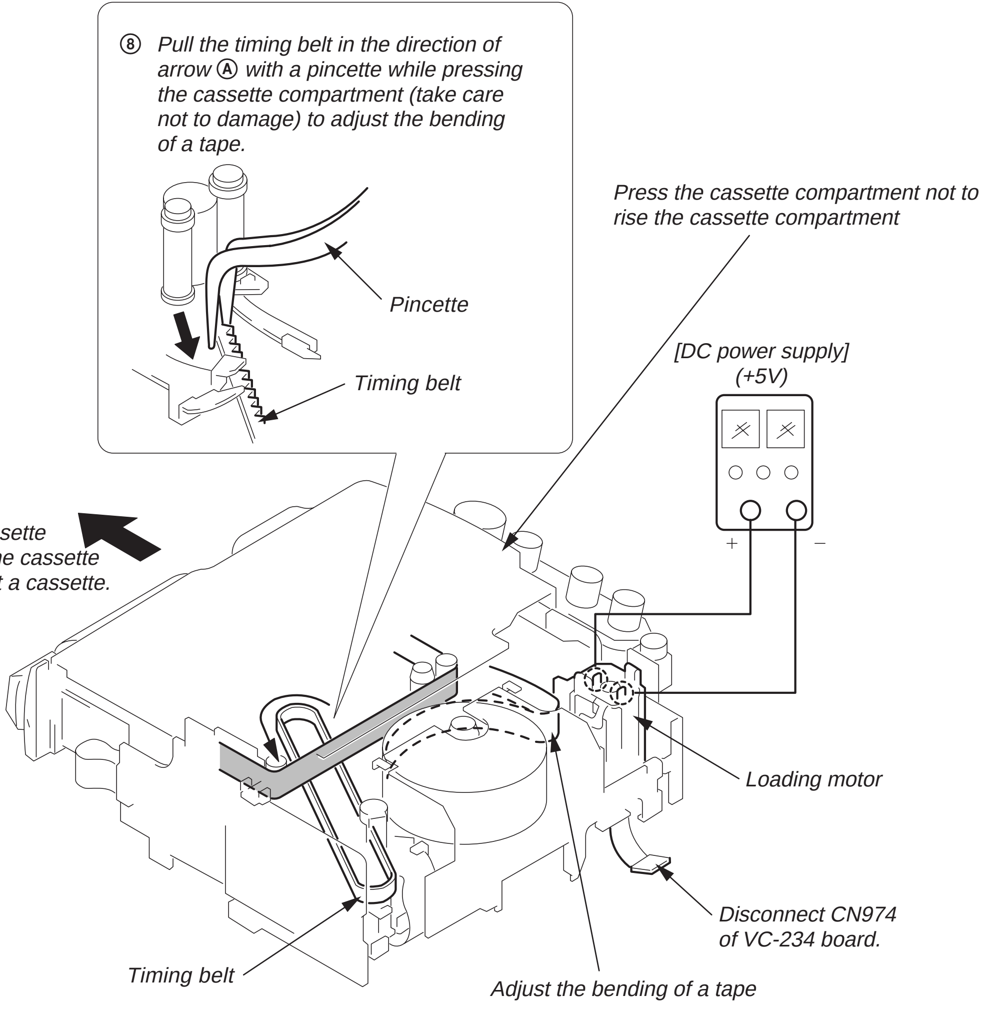
Method 2.

Use the DC IN terminal. (Use the AC power adaptor.)


Battery terminal ⊕
DC IN terminal
Battery SIG terminal
Battery terminal ⊖

2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-2. to remove the front panel block assembly.
② Refer to 2-3. to remove the cabinet (R) block assembly.
③ Refer to 2-4. to remove the cassette lid assembly.
④ Refer to 2-4. to remove the battery panel block assembly.
⑤ Refer to 2-4. to remove the cabinet (L) assembly.
⑥ Disconnect CN974 of VC-234 board.
⑦ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compartment.



⑧ Pull the timing belt in the direction of arrow Ⓐ with a pincette while pressing the cassette compartment (take care not to damage) to adjust the bending of a tape.

⑨ Let go your hold the cassette compartment and rise the cassette compartment to take out a cassette.

Pincette
Timing belt
Press the cassette compartment not to rise the cassette compartment
[DC power supply]
(+5V)
+
–
Loading motor
Disconnect CN974 of VC-234 board.
Adjust the bending of a tape
Timing belt

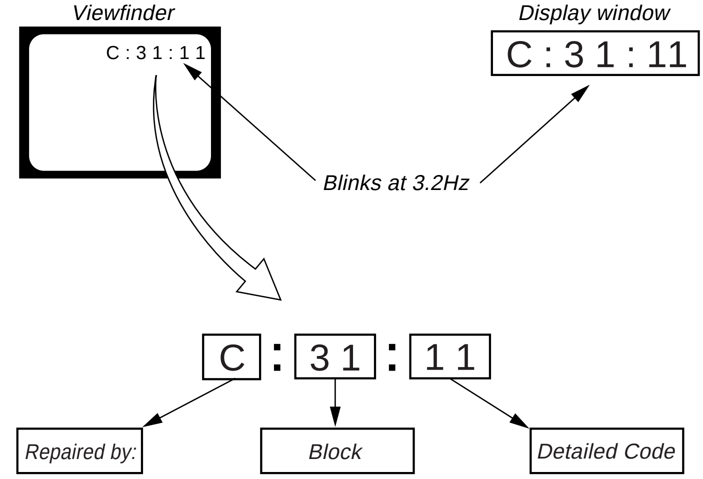
SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

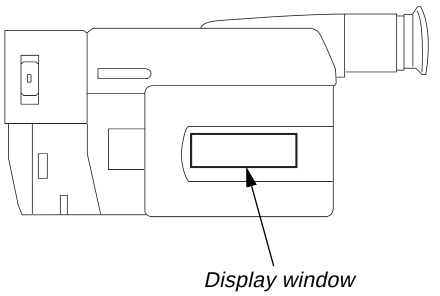
When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.


Viewfinder
C : 3 1 : 1 1
Display window
C : 3 1 : 11
Blinks at 3.2Hz
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

Refer to page 9 and 10.
Self-diagnosis Code Table.

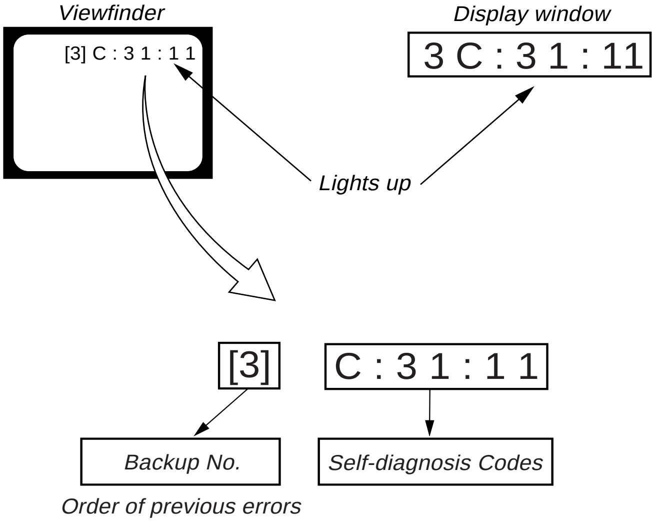

Display window

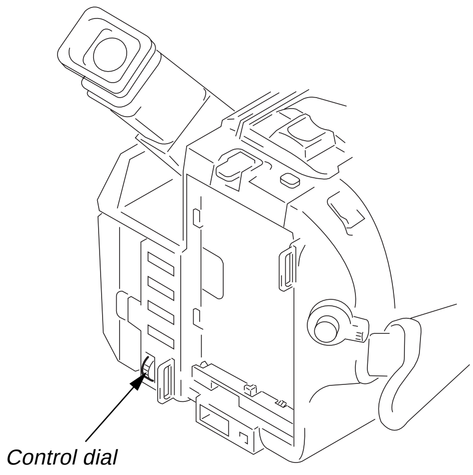
3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VTR or PLAYER", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.


Viewfinder
[3] C : 3 1 : 1 1
Display window
3 C : 3 1 : 11
Lights up
[3]
C : 3 1 : 1 1
Backup No.
Self-diagnosis Codes
Order of previous errors


Control dial

3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time
[2] : Occurred second time
[3] : Occurred third time
[4] : Occurred fourth time
[5] : Occurred fifth time
[6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be backed up by the coin-type lithium battery (CF-66/67 board BH001). When this coin-type lithium battery is disconnected, the "self-diagnosis display" data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	**Block Function**	**Detailed Code**		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN551 of VC-234 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC551 of VC-234 board) when the focusing is not performed. **Note:** Use the remote commander RM-95 only for the model without the focus dial.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN551 of VC-234 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC551 of VC-234 board) when zooming is not performed.
E	6 2	0 0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE451 of SE-101 board) peripheral circuits.
E	6 2	0 1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE452 of SE-101 board) peripheral circuits.

SECTION 1
GENERAL

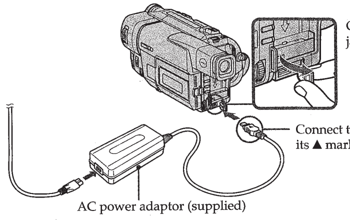
This section is extracted from instruction manual. (3-868-323-11)

Quick Start Guide

This chapter introduces you to the basic features of your camcorder. See the page in parentheses "( )" for more information.

1 Connecting the power cord (p. 14)

Use the battery pack when using your camcorder outdoors (p. 9).



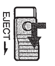
Open the DC IN jack cover.

Connect the plug with its ▲ mark facing up.

AC power adaptor (supplied)

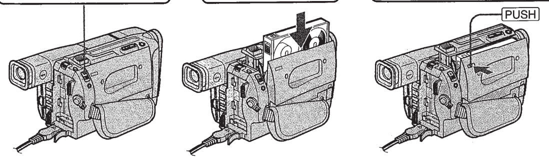
2 Inserting a cassette (p. 15)

❶ Slide EJECT in the direction of the arrow while pressing the small blue button.

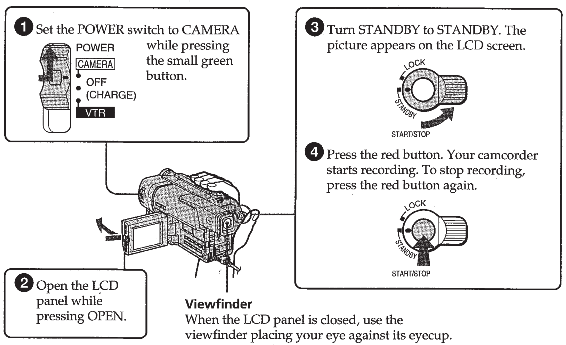


❷ Insert a cassette into the cassette compartment with its window facing out.

❸ Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.



3 Recording a picture (p. 16)



❶ Set the POWER switch to CAMERA while pressing the small green button.

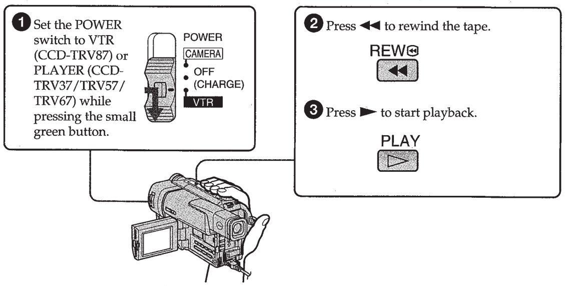
❷ Open the LCD panel while pressing OPEN.

❸ Turn STANDBY to STANDBY. The picture appears on the LCD screen.

❹ Press the red button. Your camcorder starts recording. To stop recording, press the red button again.

Viewfinder
When the LCD panel is closed, use the viewfinder placing your eye against its eyecup. The picture in the viewfinder is black and white.

4 Monitoring the playback picture on the LCD screen (p. 24)

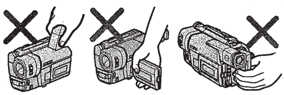


❶ Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67) while pressing the small green button.

❷ Press ◀◀ to rewind the tape.

❸ Press ▶ to start playback.

NOTE
Do not pick up your camcorder by holding the viewfinder, the LCD panel or the battery pack.



— Getting started —

Using this manual

The instructions in this manual are for the four models listed in the table below. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The CCD-TRV87 is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV87 only."
As you read through this manual, buttons and settings on your camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
When you carry out an operation, you can hear a beep sound to indicate that the operation is being carried out.

Types of differences

CCD-	TRV37	TRV57	TRV67	TRV87
System	8	8	Hi8	Hi8
VIDEO/AUDIO IN*	—	—	—	●
S VIDEO	—	—	●**	●
Digital zoom	200×	360×	360×	360×
Super NightShot	—	—	—	●
SteadyShot	—	●	●	●
Remote sensor	—	●	●	●
SUPER LASER LINK	—	—	—	●
Photo mode	—	—	—	●
PROGRAM AE	●	●	●	●
Low lux mode	—	—	—	●
Digital effect	—	—	—	●
Fader function	●	●	●	●
OVERLAP	—	—	—	●
WIPE	—	—	—	●
Audio	monaural	monaural	monaural	stereo

● Provided
— Not provided

* The models without VIDEO/AUDIO IN have CAMERA, OFF and PLAYER mode on the POWER switch.
** Output only

Note on TV color systems

TV color systems differ from country to country. To view your recordings on a TV, you need an NTSC system-based TV.

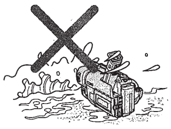
Copyright precautions

Television programs, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

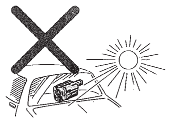
Precautions on camcorder care

- **The LCD screen and the viewfinder are manufactured using high-precision technology.**
  However, there may be some tiny black points and/or bright points (red, blue, green or white) that constantly appear on the LCD screen and in the viewfinder. These points occur normally in the manufacturing process and do not affect the recorded picture in any way.
  Effective ratio of pixels and/or screen are 99.99% or more.
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired **[a]**.
- Never leave your camcorder exposed to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight **[b]**.
- Do not place your camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or the LCD screen may be damaged **[c]**.

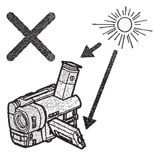
[a]



[b]

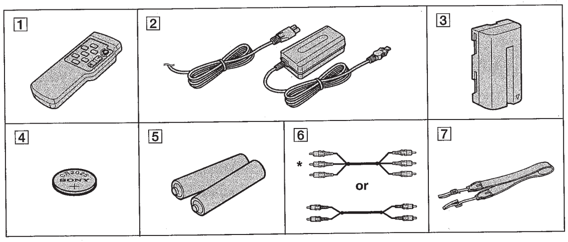


[c]



Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1) (p. 84)
CCD-TRV57/TRV67/TRV87 only

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Power cord** (1) (p. 10)

3 **NP-F330 battery pack** (1) (p. 9, 10)

4 **CR2025 lithium battery** (1) (p. 65)
The lithium battery is already installed in your camcorder.

5 **Size AA (R6) battery for Remote Commander** (2) (p. 84)
CCD-TRV57/TRV67/TRV87 only

6 **A/V connecting cable** (1) (p. 27)
* for stereo model

7 **Shoulder strap** (1) (p. 81)

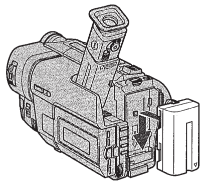
> Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

Step 1 Preparing the power supply

Installing the battery pack

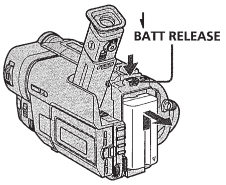
Install the battery pack to use your camcorder outdoors.

Slide the battery pack down until it clicks.



To remove the battery pack

Slide the battery pack out in the direction of the arrow while pressing BATT RELEASE down.



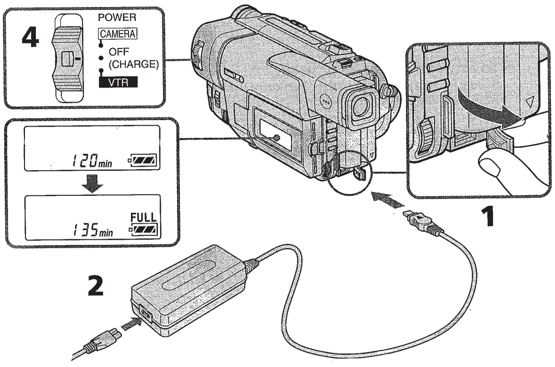
After installing the battery pack
Do not carry your camcorder by holding the battery pack. If you do so, the battery pack may slide off your camcorder unintentionally, damaging your camcorder.

Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the "InfoLITHIUM" battery pack (L series).

(1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
(2) Connect the power cord to the AC power adaptor.
(3) Connect the power cord to a wall outlet.
(4) Set the POWER switch to OFF (CHARGE). Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to ▬, **normal charge** is completed. To fully charge the battery **(full charge)**, leave the battery pack attached for about 1 hour after normal charge is completed until FULL appears in the display window. Fully charging the battery allows you to use the battery longer than usual.



Notes
- Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.
- Keep the battery pack dry.
- When the battery pack is not to be used for a long time, charge the battery pack once fully and then use it until it fully discharges again. Keep the battery pack in a cool place.

Remaining battery time indicator
The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Battery pack
The battery pack is charged a little before it leaves the factory.

Until your camcorder calculates the actual remaining battery time
"– – – – min" appears in the display window.

Charging time

Battery pack	Full charge (Normal charge)
NP-F330 (supplied)	150 (90)
NP-F530/F550	210 (150)
NP-F730/F730H/F750	300 (240)
NP-F930/F950	390 (330)
NP-F960	420 (360)

Approximate number of minutes to charge an empty battery pack

Recording time

CCD-TRV37/TRV57/TRV67

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	140 (125)	75 (70)	120 (105)	65 (55)
NP-F530	245 (220)	135 (120)	205 (180)	110 (100)
NP-F550	280 (250)	155 (135)	240 (210)	130 (115)
NP-F730	500 (450)	275 (245)	410 (370)	225 (205)
NP-F730H/F750	580 (525)	320 (290)	490 (440)	270 (240)
NP-F930	780 (705)	430 (385)	650 (585)	355 (320)
NP-F950	900 (790)	495 (435)	750 (675)	410 (370)
NP-F960	1035 (930)	570 (510)	880 (790)	490 (440)

CCD-TRV87

Battery pack	Recording with the viewfinder		Recording with the LCD screen	
	Continuous*	Typical**	Continuous*	Typical**
NP-F330 (supplied)	135 (120)	75 (65)	115 (100)	65 (55)
NP-F530	235 (210)	130 (115)	195 (170)	110 (95)
NP-F550	270 (240)	150 (130)	230 (200)	125 (110)
NP-F730	475 (425)	260 (235)	395 (355)	215 (195)
NP-F730H/F750	550 (500)	300 (275)	470 (425)	260 (235)
NP-F930	745 (670)	410 (370)	625 (560)	345 (310)
NP-F950	850 (760)	465 (420)	725 (650)	400 (355)
NP-F960	990 (890)	545 (490)	850 (765)	470 (420)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "( )" indicate the time using a normally charged battery.

* Approximate continuous recording time at 77°F (25°C). The battery life will be shorter if you use your camcorder in a cold environment.

** Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Playing time

CCD-TRV37/TRV57/TRV67

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	125 (110)	145 (130)
NP-F530	215 (190)	260 (230)
NP-F550	250 (220)	295 (260)
NP-F730	430 (385)	525 (475)
NP-F730H/F750	510 (460)	610 (550)
NP-F930	680 (610)	825 (740)
NP-F950	780 (700)	930 (830)
NP-F960	915 (820)	1090 (980)

CCD-TRV87

Battery pack	Playing time on LCD screen	Playing time with LCD closed
NP-F330 (supplied)	120 (105)	140 (125)
NP-F530	205 (180)	245 (220)
NP-F550	240 (210)	280 (250)
NP-F730	410 (370)	500 (450)
NP-F730H/F750	490 (440)	580 (525)
NP-F930	680 (585)	780 (705)
NP-F950	750 (675)	900 (790)
NP-F960	880 (790)	1035 (930)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "( )" indicate the time using a normally charged battery. The battery life will be shorter if you use your camcorder in a cold environment.

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note on the remaining battery time indicator during recording

The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time to be displayed.

What is "InfoLITHIUM"?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camcorder operates only with the "InfoLITHIUM" battery. "InfoLITHIUM" L series battery packs have the InfoLITHIUM L SERIES mark.

"InfoLITHIUM" is a trademark of Sony Corporation.

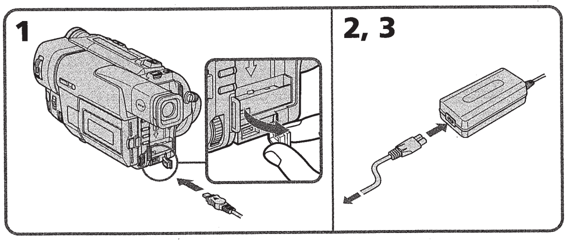
Connecting to a wall outlet

When you use your camcorder for a long time, we recommend that you power it from a wall outlet using the AC power adaptor.

(1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.

(2) Connect the power cord to the AC power adaptor.

(3) Connect the power cord to a wall outlet.



PRECAUTION

The set is not disconnected from the AC power source (house current) as long as it is connected to the wall outlet, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority". This means that the battery pack cannot supply any power if the power cord is connected to the DC IN jack, even when the power cord is not plugged into a wall outlet.

Using a car battery

Use Sony DC Adaptor/Charger (not supplied).

Step 2 Inserting a cassette

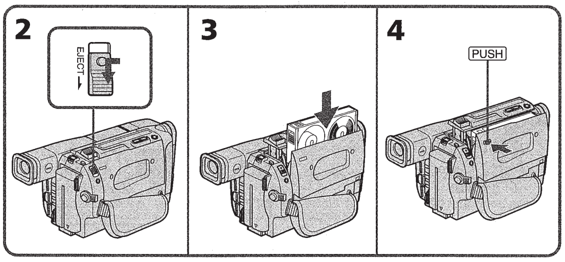
When you want to record in the Hi8 system, use Hi8 video cassette **Hi8**. (CCD-TRV67/TRV87 only)

(1) Prepare the power supply (p. 9).

(2) Slide EJECT in the direction of the arrow while pressing the small blue button. The cassette compartment automatically lifts up and opens.

(3) Insert a cassette with its window facing out and the tab on the cassette up.

(4) Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.



To eject a cassette

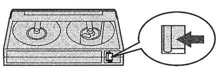
Slide EJECT in the direction of the arrow while pressing the small blue button.

Note

Do not press the cassette compartment down. Doing so may cause malfunction.

To prevent accidental erasure

Slide the write-protect tab on the cassette to expose the red mark.



Recording a picture

Your camcorder automatically focuses for you.

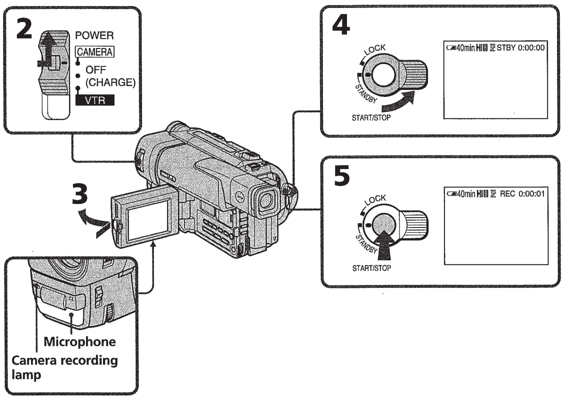
(1) Install the power source and insert a cassette. See "Step 1" and "Step 2" for more information (p. 9 to 15).

(2) Set the POWER switch to CAMERA while pressing the small green button. The lens cover opens.

(3) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.

(4) Turn STANDBY to STANDBY.

(5) Press START/STOP. Your camcorder starts recording. The "REC" indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again.
The recording lamp lights up in the viewfinder when you record with the viewfinder.



Note
Fasten the grip strap firmly. Do not touch the built-in microphone during recording.

To enable smooth transition
You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette. When you exchange the battery pack in the recording mode, set STANDBY to LOCK.

If you leave your camcorder in the standby mode for 5 minutes while the cassette is inserted
Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

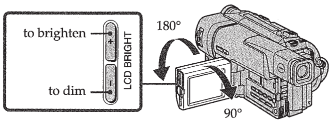
To set the counter to 0:00:00
Press COUNTER RESET (p. 82).

After recording

(1) Turn STANDBY down to LOCK.
(2) Close the LCD panel.
(3) Eject the cassette.
(4) Set the POWER switch to OFF (CHARGE).
(5) Remove the battery pack.

Adjusting the LCD screen

To adjust the brightness of the LCD screen, press either of the two buttons on LCD BRIGHT.
The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.
If you turn the LCD panel over so that it faces the other way, the ☺ indicator appears in the viewfinder and on the LCD screen (**Mirror mode**).



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note
When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight
The LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

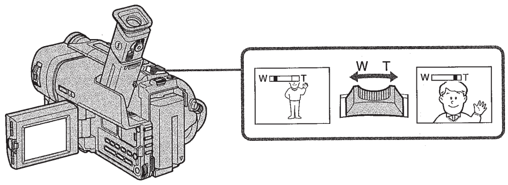
Picture in the mirror mode
The picture on the LCD is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode
DATE and TIME on your camcorder do not work.

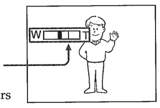
Indicators in the mirror mode
- The STBY indicator appears as **II●** and REC as **●**. Some of the other indicators appear mirror-reversed and others are not displayed.
- The date appears mirror-reversed when the auto date function is working. However, the date will be normal when recorded.

Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom.
Using the zoom function sparingly results in better-looking recordings.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)



Zoom greater than 20× is performed digitally.
To activate digital zoom, select the digital zoom power in D ZOOM in the menu settings. (p. 55)
The picture quality deteriorates as the picture is processed digitally.



The right side of the bar shows the digital zooming zone.
The digital zooming zone appears when you select the digital zoom power in D ZOOM in the menu settings.

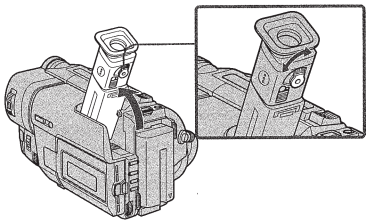
When you shoot close to a subject
If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 2 feet 5/8 inch (about 80 cm) away from the lens surface in the telephoto position, or about 1/2 inch (about 1 cm) away in the wide-angle position.

Notes on digital zoom
- Digital zoom starts to function when zoom exceeds 20×.
- The picture quality deteriorates as you go toward the "T" side.

To record pictures with the viewfinder – adjusting the viewfinder

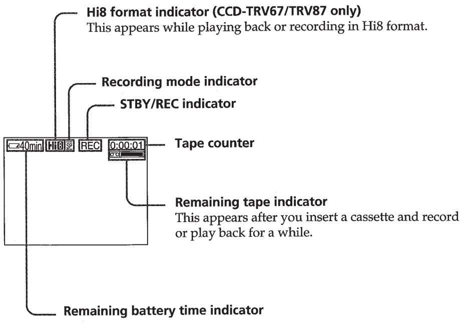
If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.



Indicators displayed in the recording mode

The indicators are not recorded on tape.



Hi8 format indicator (CCD-TRV67/TRV87 only)
This appears while playing back or recording in Hi8 format.

Recording mode indicator

STBY/REC indicator

Tape counter

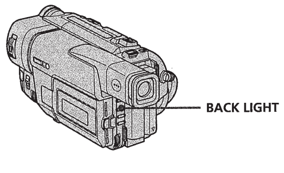
Remaining tape indicator
This appears after you insert a cassette and record or play back for a while.

Remaining battery time indicator

Shooting backlit subjects (BACK LIGHT)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in the recording or standby mode.
The ◪ indicator appears in the viewfinder or on the LCD screen.
To cancel, press BACK LIGHT again.

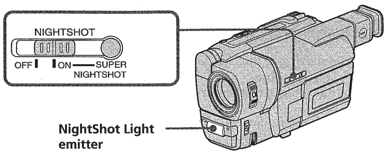


If you press EXPOSURE when shooting backlit subjects
The backlight function will be canceled.

Shooting in the dark (NightShot)

The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

While your camcorder is in the standby mode, slide NIGHTSHOT to ON.
◙ and "NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder. To cancel the NightShot function, slide NIGHTSHOT to OFF.



Using the Super NightShot mode
– CCD-TRV87 only

The Super NightShot mode makes subjects more than four times brighter than those recorded in the NightShot mode.

(1) Slide NIGHTSHOT to ON in the standby mode. ◙ indicator appears on the LCD screen or in the viewfinder.
(2) Press SUPER NIGHTSHOT. S◙ and "SUPER NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder.
To cancel the Super NightShot mode, press SUPER NIGHTSHOT again.

Using the NightShot Light

The picture will be clearer with the NightShot Light on. To enable NightShot Light, set N.S.LIGHT to ON in the menu settings (p. 55).

Notes
- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT set to ON in normal recording, the picture may be recorded in incorrect or unnatural colors.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you can not use the following functions:
– Exposure
– PROGRAM AE
– Fader* (CCD-TRV87 only)
– Digital effect* (CCD-TRV87 only)
* You cannot use these functions only in the Super NightShot mode.

Shutter speed in the Super NightShot mode (CCD-TRV87 only)
The shutter speed will be automatically changed depending on the brightness of the scene.

The SUPER NIGHTSHOT button does not work (CCD-TRV87 only):
– while the fader function is set or in use
– while the digital effect function is in use
– when NIGHTSHOT is set to OFF

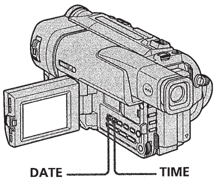
NightShot Light
NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 10 feet (3 m). The shooting distance will be twice or more in the Super NightShot mode (CCD-TRV87 only).

Superimposing the date and time on pictures

You can record the date or time displayed in the viewfinder or on the LCD screen superimposed on the picture.
Carry out the following operations in the standby or recording mode.

Press DATE to record the date.
Press TIME to record the time.
Press DATE (or TIME), then press TIME (or DATE) to record the date and time.

Press DATE and/or TIME again. The date and/or time indicator disappears.



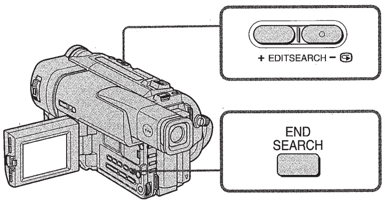
The default clock setting is set to East Coast Standard Time. You can reset the clock in the menu settings (p. 55).

Note
The date and time indicators recorded manually cannot be deleted.

If you do not record the date and time in the picture
Record the date and time in the black screen as the background for about 10 seconds, then erase the date and time indicators before starting actual recording.

Checking the recording
– END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.



END SEARCH

You can go to the end of the recorded section after you record.

Press END SEARCH in the standby mode.
The last 5 seconds of the recorded section are played back and playback stops. You can monitor the sound from the speaker, headphones (CCD-TRV87 only) or an earphone (CCD-TRV37/TRV57/TRV67 only).

Note
If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Once you eject the cassette after you have recorded on the tape
The end search function does not work.

EDITSEARCH

You can search for the next recording start point.

Hold down the +/– (⊜) side of EDITSEARCH in the standby mode. The recorded section is played back.
+ : to go forward
– : to go backward
Release EDITSEARCH to stop playback. If you press START/STOP, re-recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

You can check the last recorded section.

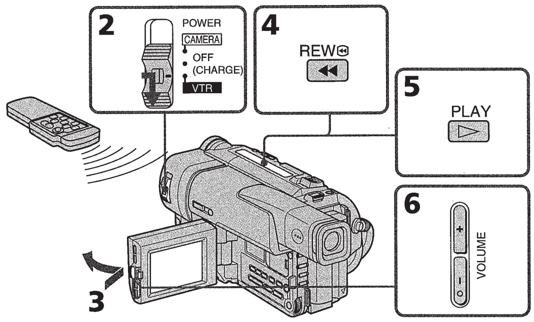
Press the – (⊜) side of EDITSEARCH momentarily in the standby mode.
The last few seconds of the recorded section are played back. You can monitor the sound from the speaker, headphones (CCD-TRV87 only) or an earphone (CCD-TRV37/TRV57/TRV67 only).

— Playback – Basics —

Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder. If you close the LCD panel, you can monitor the playback picture in the viewfinder. You can control playback using the Remote Commander supplied with your camcorder. (CCD-TRV57/TRV67/TRV87 only)

(1) Install the power source and insert the recorded tape.
(2) Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67) while pressing the small green button.
(3) Open the LCD panel while pressing OPEN.
(4) Press ◀◀ to rewind the tape.
(5) Press ▶ to start playback.
(6) To adjust the volume, press either of the two buttons on VOLUME. The speaker on your camcorder is silent when the LCD panel is closed.

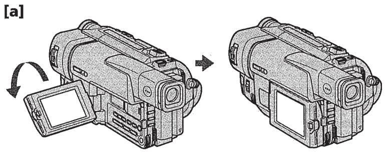


To stop playback

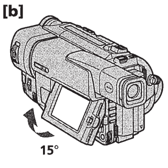
Press ■.

When monitoring on the LCD screen
You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out **[a]**. You can adjust the angle of the LCD panel by lifting the LCD panel up by 15 degrees **[b]**.

[a]

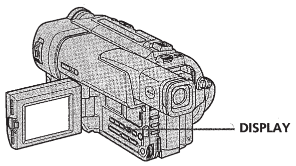


[b]



To control the display of the screen indicators

Press DISPLAY on your camcorder or the Remote Commander (CCD-TRV57/TRV67/TRV87 only) supplied with your camcorder.
The indicators appear on the LCD screen.
To make the indicators disappear, press DISPLAY again.



Various playback modes

To operate video control buttons, set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67 only).

To view a still picture (playback pause)

Press ❚❚ during playback. To resume playback, press ❚❚ or ▶.

To advance the tape

Press ▶▶ in the stop mode. To resume normal playback, press ▶.

To rewind the tape

Press ◀◀ in the stop mode. To resume normal playback, press ▶.

To locate a scene monitoring the picture (picture search)

Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)

Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback)

– CCD-TRV57/TRV67/TRV87 only
Press ❙▶ on the Remote Commander during playback. To resume normal playback, press ▶.

To search the last scene recorded (END SEARCH)

Press END SEARCH in the stop mode. The last 5 seconds of the recorded section plays back and stops.

In the various playback modes
Sound is muted.

When the playback pause mode lasts for 5 minutes
Your camcorder automatically enters the stop mode. To resume playback, press ▶.

If slow playback lasts for about 1 minute (CCD-TRV57/TRV67/TRV87 only)
Your camcorder automatically returns to normal speed.

When you play back a tape recorded in the LP mode
Noise may appear during playback pause mode, slow playback (CCD-TRV57/TRV67/TRV87 only) or picture search.

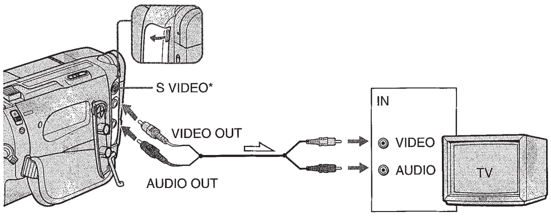
The tapes recorded in the Hi8 format (CCD-TRV37/TRV57 only)
You can play back the tapes recorded in the Hi8 video system on your camcorder.

Viewing the recording on TV

Connect your camcorder to your TV or VCR with the A/V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. When monitoring the playback picture on the TV screen, we recommend that you power your camcorder from a wall outlet using the AC power adaptor (p. 14). Refer to the operating instructions of your TV or VCR.

Open the jack cover. Connect your camcorder to the TV using the A/V connecting cable. Then, set the TV/VCR selector on the TV to VCR.

CCD-TRV37/TRV57/TRV67

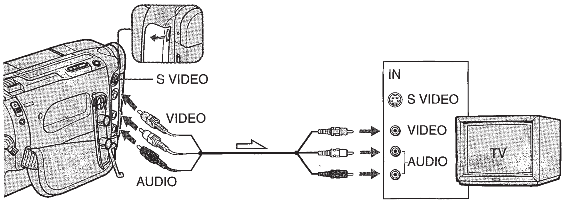


CCD-TRV67

⇨ : Signal flow

* CCD-TRV67 only

CCD-TRV87



⇨ : Signal flow

If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

If your TV or VCR is a monaural type

– CCD-TRV87 only

Connect the yellow plug for video and the white plug for audio on both your camcorder and the TV or the VCR (you do not connect the red plug).
With this connection, the sound is monaural.

To connect to a TV or VCR without Video/Audio input jacks

Use an NTSC system RFU adaptor (not supplied).
Refer to the operating instructions of your TV or VCR and the RFU adaptor. With an RFU adaptor, the sound is monaural even on stereo models.

If your TV or VCR has an S video jack (CCD-TRV67/TRV87 only)

Connect using an S video cable (not supplied) to obtain high-quality pictures. With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect the S video cable (not supplied) to the S video jacks on both your camcorder and the TV or the VCR.

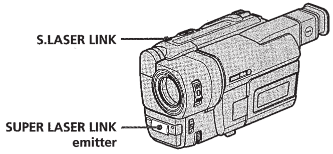
Monitoring the picture from a TV or VCR (CCD-TRV87 only)

You can monitor the picture on the LCD screen. Connect your camcorder to the outputs on the TV or VCR.

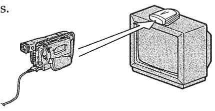
Using the AV cordless IR receiver

– CCD-TRV87 only

Once you connect the AV cordless IR receiver (not supplied) to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instructions of the AV cordless IR receiver.



(1) After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
(2) Turn the TV on and set the TV/VCR selector on the TV to VCR.
(3) Press S.LASER LINK. The lamp of S.LASER LINK lights up.
(4) Press ► on your camcorder to start playback.
(5) Point the SUPER LASER LINK emitter at the AV cordless IR receiver. Adjust the position of your camcorder and the AV cordless IR receiver to obtain clear playback pictures.



To cancel the super laser link function

Press S.LASER LINK. The lamp on the S.LASER LINK button goes out.

If you turn the power off

Super laser link turns off automatically.

If you use a Sony TV

- You can turn on the TV automatically when you press S.LASER LINK or ►. To do so, set AUTO TV ON to ON in the menu settings and turn the TV's main switch on, then do either of the following:
  – Point the SUPER LASER LINK emitter at the TV's remote sensor and press S.LASER LINK.
  – Turn on super laser link and press ►.
- You can switch the video input of the TV automatically to the one which the AV cordless IR receiver is connected. To do so, set AUTO TV ON to ON and TV INPUT to the same video input (1, 2, 3) in the menu settings. With some models, however, the picture and sound may be disconnected momentarily when the video input is switched.
- The above feature may not work on some TV models.

Note

When super laser link is activated (the S.LASER LINK button is lit), your camcorder consumes power. Press S.LASER LINK to turn off the super laser link function when it is not needed.

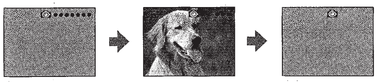
Recording a still image on a tape – Tape Photo recording

– CCD-TRV87 only

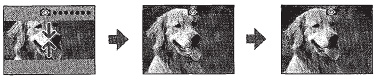
You can record a still picture like a photograph. This mode is useful when you want to record a picture such as a photograph or when you print a picture using a video printer (not supplied).

NORMAL PHOTO This mode records a still picture for about seven seconds.

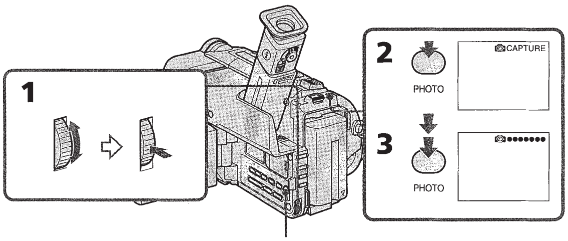
FADE PHOTO



SHUTTER PHOTO



(1) While your camcorder is in the standby mode, select the photo mode in the menu settings (p. 55).
(2) Keep pressing PHOTO lightly until a still picture appears. The CAPTURE indicator appears. Recording does not start yet.
To change the still picture, release PHOTO, select a still picture again, and then press and hold PHOTO lightly.
(3) Press PHOTO deeper.
The still picture in the viewfinder or on the LCD screen is recorded for about seven seconds. The sound during those seven seconds is also recorded.
The still image is displayed in the viewfinder or on the LCD screen until recording is completed.



Notes

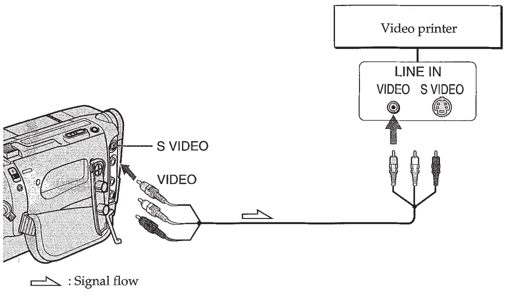
- During tape photo recording, you cannot change the mode or setting of the following functions:
  – Digital effect
  – Fader
  – PROGRAM AE
  – Picture effect
  – Exposure
  – Wide mode
  – Backlight
  – Super NightShot
- The PHOTO button does not work:
  – while the digital effect function is set or in use.
  – while the fader function is in use.
- When recording a still picture, do not shake your camcorder. The picture may fluctuate.

To use the tape photo recording function during normal CAMERA recording

Press PHOTO deeper. The still picture is then recorded for about seven seconds and your camcorder returns to the standby mode. You cannot select another still picture.

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the A/V connecting cable supplied with your camcorder.
Connect the yellow plug of the cable to the video jack on both your camcorder and the video printer. Refer to the operating instructions of the video printer as well.



If the video printer is equipped with S video input

Use the S video connecting cable (not supplied). Connect it to the S VIDEO jack and the S video input of the video printer.

Using the wide mode

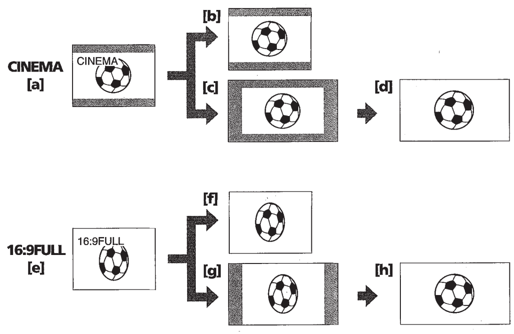
You can record a cinema-like picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9FULL). Refer to the operating instructions of your TV.

CINEMA

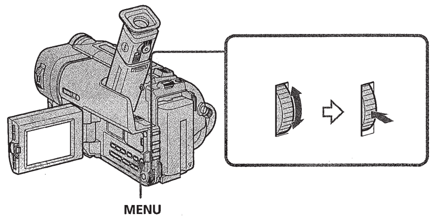
Black bands appear on the screen during recording in the CINEMA mode **[a]**, playing back on a normal TV **[b]** or a wide-screen TV **[c]**. If you set the screen mode of the wide-screen TV to the zoom mode, a picture without black bands appears **[d]**.

16:9FULL

The picture during recording in the 16:9FULL mode **[e]**, or playing back on a normal TV **[f]** or a wide-screen TV **[g]** is horizontally compressed. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images **[h]**.



In the standby mode, set 16:9WIDE to CINEMA or 16:9FULL in the menu settings (p. 55).



To cancel the wide mode

Set 16:9WIDE to OFF in the menu settings.

If the wide mode is set to 16:9FULL (CCD-TRV57/TRV67/TRV87 only)

The SteadyShot function does not work. If you select 16:9FULL in the menu settings when the SteadyShot function is working, ✋ flashes and the SteadyShot function does not function.

In the wide mode

You cannot select the old movie function with DIGITAL EFFECT (CCD-TRV87 only) and the bounce function with FADER.

Date or time indicator

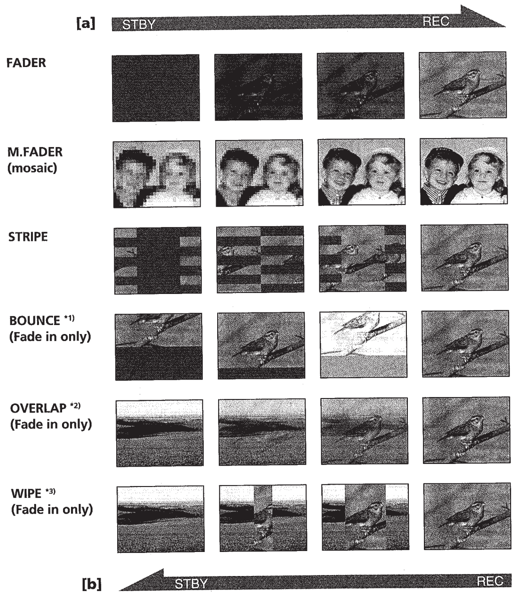
When you record in the 16:9FULL mode, the date or time indicator will be widened on wide-screen TVs.

During recording

You cannot change or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby mode and then set 16:9WIDE to OFF.

Using the fader function

You can fade in or out to give your recording a professional appearance.



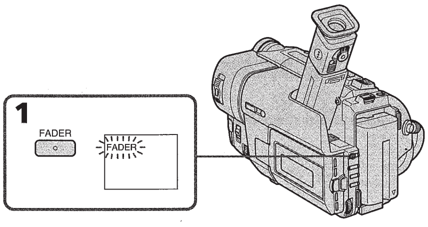
MONOTONE

When fading in, the picture gradually changes from black-and-white to color.
When fading out the picture gradually changes from color to black-and-white.

*1) You can use this function only when D ZOOM is set to OFF.
*2) CCD-TRV87 only
*3) CCD-TRV87 only. The sound does not wipe away.

(1) When fading in [a]
In the standby mode, press FADER until the desired fader indicator flashes.
When fading out [b]
In the recording mode, press FADER until the desired fader indicator flashes.
The indicator changes as follows:
FADER → M.FADER → STRIPE → BOUNCE → MONOTONE → OVERLAP (CCD-TRV87 only) → WIPE (CCD-TRV87 only) → no indicator
The last selected fader mode is indicated first of all.

(2) Press START/STOP. The fader indicator stops flashing.



To cancel the fader function

After the fade in/out is carried out : Your camcorder automatically returns to the normal mode.
Before the fade in/out is carried out : Before pressing START/STOP, press FADER until the indicator disappears.

Using the Fader function

Note (CCD-TRV87 only)
You cannot use the following functions while using the fader function. Also, you cannot use the fader function while using the following functions.
- Digital effect
- Low lux mode of PROGRAM AE (Overlap/Wipe function only)
- Super NightShot
- Tape Photo recording

The date, time indicator and title do not fade in or fade out
Erase them before operating the fader function if they are not needed.

If you do not record anything before operating the wipe or overlap function (CCD-TRV87 only)
Your camcorder stores the image on the tape. As the image is being stored, the WIPE or OVERLAP indicator flashes quickly, and the picture you are shooting disappears from the viewfinder. Depending on the tape condition, the picture may not be recorded clearly.

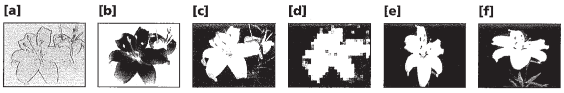
While using the bounce function, you cannot use the following functions:
- Exposure
- Focus
- Zoom
- Picture effect

Note on the bounce function
The BOUNCE indicator does not appear in the following mode or functions:
- D ZOOM is set to the mode other than OFF in the menu settings.
- Wide mode
- Picture effect
- PROGRAM AE

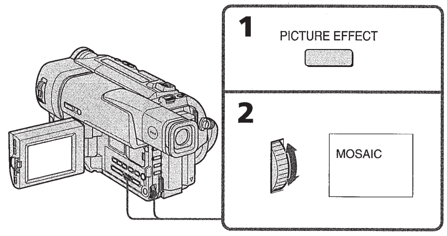
Using special effects – Picture effect

You can digitally process images to obtain special effects like those in films or on the TV.

PASTEL [a] :	The contrast of the picture is emphasized, and the picture looks like an animated cartoon.
NEG. ART [b] :	The color and brightness of the picture is reversed.
SEPIA :	The picture is sepia.
B&W :	The picture is monochrome (black-and-white).
SOLARIZE [c] :	The light intensity is clearer, and the picture looks like an illustration.
MOSAIC [d] :	The picture is mosaic.
SLIM [e] :	The picture expands vertically.
STRETCH [f] :	The picture expands horizontally.



(1) Press PICTURE EFFECT in the standby or recording mode.
The picture effect indicator appears.
(2) Turn the SEL/PUSH EXEC dial to select the desired picture effect mode.
The indicator changes as follows:
PASTEL ←→ NEG.ART ←→ SEPIA ←→ B&W ←→ SOLARIZE ←→ MOSAIC ←→ SLIM ←→ STRETCH



To turn the picture effect function off
Press PICTURE EFFECT.

While using the picture effect function (CCD-TRV87 only)
You cannot select the old movie mode with DIGITAL EFFECT.

When you turn the power off
Your camcorder automatically returns to the normal mode.

Using special effects – Digital effect

– CCD-TRV87 only
You can add special effects to recorded pictures using the various digital functions. The sound is recorded normally.

STILL
You can record a still picture so that it is superimposed on a moving picture.

FLASH (FLASH MOTION)
You can record still pictures successively at constant intervals.

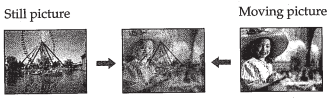
LUMI. (LUMINANCEKEY)
You can swap a brighter area in a still picture with a moving picture.

TRAIL
You can record the picture so that an incidental image like a trail is left.

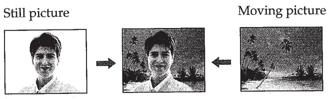
SLOW SHTR (SLOW SHUTTER)
You can slow down the shutter speed. The slow shutter mode is good for recording dark pictures more brightly.

OLD MOVIE
You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to CINEMA, picture effect to SEPIA, and the appropriate shutter speed.

STILL



LUMI.

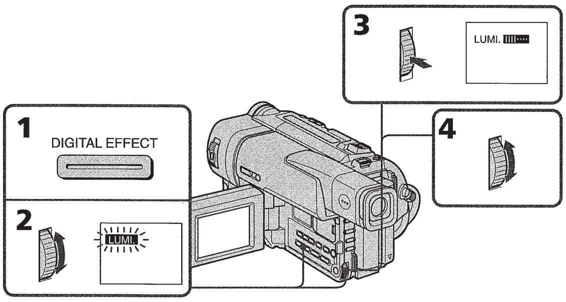


Using special effects – Digital effect

(1) While your camcorder is in the standby or recording mode, press DIGITAL EFFECT. The digital effect indicator appears.
(2) Turn the SEL/PUSH EXEC dial to select the desired digital effect mode.
The indicator changes as follows:
STILL ←→ FLASH ←→ LUMI. ←→ TRAIL ←→ SLOW SHTR ←→ OLD MOVIE
(3) Press the SEL/PUSH EXEC dial. The indicator lights up and the bars appear.
In the STILL and LUMI. modes, the still picture is stored in memory.
(4) Turn the SEL/PUSH EXEC dial to adjust the effect as follows:

STILL – The rate of the still picture you want to superimpose on the moving picture
FLASH – The interval of flash motion
LUMI. – The color scheme of the area in the still picture which is to be swapped with a moving picture
TRAIL – The vanishing time of the incidental image
SLOW SHTR – Shutter speed. The larger the shutter speed number, the slower the shutter speed.
OLD MOVIE – No adjustment necessary

The more bars there are on screen, the stronger the digital effect. The bars appear in the following modes: STILL, FLASH, LUMI. and TRAIL.



To cancel the digital effect
Press DIGITAL EFFECT. The digital effect indicator disappears.

Using special effects – Digital Effect

Notes

- The following functions do not work during digital effect:
  - Fader
  - Low lux mode of PROGRAM AE
  - Tape Photo recording
  - Super NightShot
- The following function does not work in the slow shutter mode:
  - Exposure
  - PROGRAM AE
- The following functions do not work in the old movie mode:
  - Exposure
  - Wide mode
  - Picture effect
  - PROGRAM AE

When you turn the power off
The digital effect will be automatically canceled.

When recording in the slow shutter mode
Auto focus may not be effective. Focus manually using a tripod.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/30
SLOW SHTR 2	1/15
SLOW SHTR 3	1/8
SLOW SHTR 4	1/4

Using the PROGRAM AE function

You can select PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

Spotlight mode
This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theater.

Soft portrait mode
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

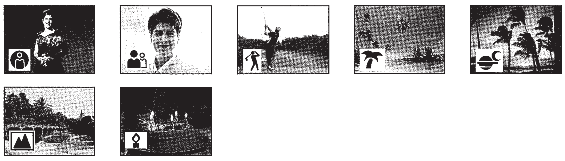
Sports lesson mode
This mode minimizes shake on fast-moving subjects such as in tennis or golf.

Beach & ski mode
This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon mode
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

Landscape mode
This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

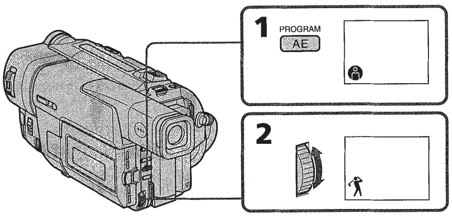
Low lux mode (CCD-TRV87 only)
This mode makes subjects brighter in insufficient light.



Using the PROGRAM AE function

(1) Press PROGRAM AE in the standby mode. The PROGRAM AE indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired PROGRAM AE mode. The indicator changes as follows:
↔ ↔ ↔ ↔ ↔ ↔ (CCD-TRV87 only)



To turn the PROGRAM AE function off
Press PROGRAM AE.

Notes

- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- The following functions do not work in the PROGRAM AE mode:
  - Slow shutter (CCD-TRV87 only)
  - Old movie (CCD-TRV87 only)
  - NightShot
  - Bounce
- The following functions do not work in the low lux mode (CCD-TRV87 only):
  - Digital effect
  - Overlap
  - Wipe
  - Exposure
- If you press PROGRAM AE when using the NightShot function, the PROGRAM AE indicator flashes and the PROGRAM AE function does not work.

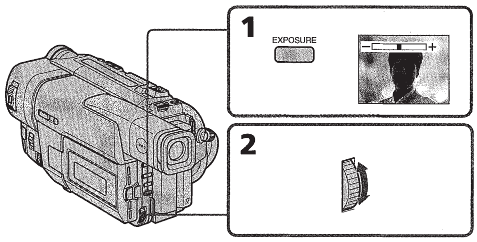
If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp
Flickering or changes in color may occur in the following modes. If this happens, turn the PROGRAM AE function off.
- Soft portrait mode
- Sports lesson mode

Adjusting the exposure manually

You can manually adjust and set the exposure.
Adjust the exposure manually in the following cases:
- The subject is backlit
- Bright subject and dark background
- To record dark pictures (e.g. night scenes) faithfully

(1) Press EXPOSURE in the standby or recording mode.
The exposure indicator appears.

(2) Turn the SEL/PUSH EXEC dial to adjust the brightness.



To return to the automatic exposure mode
Press EXPOSURE again.

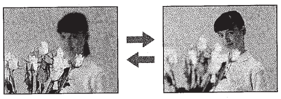
Note
When you adjust the exposure manually, the following function and modes do not work:
- Backlight
- Slow shutter (CCD-TRV87 only)
- Old movie (CCD-TRV87 only)

Your camcorder automatically returns to the automatic exposure mode:
- if you change the PROGRAM AE mode
- if you slide NIGHTSHOT to ON

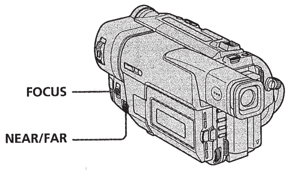
Focusing manually

You can gain better results by manually adjusting the focus in the following cases:

- The autofocus mode is not effective when shooting
  - subjects through glass coated with water droplets
  - horizontal stripes
  - subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod



(1) Set FOCUS to MANUAL in the standby or recording mode. The Ⓕ indicator appears.
(2) Turn NEAR/FAR to sharpen focus.



To return to the autofocus mode

Set FOCUS to AUTO.

To record distant subjects

When you press FOCUS down to INFINITY, the lens focuses on infinity and ▲ indicator appears. When you release FOCUS, your camcorder returns to the manual focus mode. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

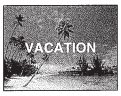
To focus precisely
Adjust the zoom by first focusing at the "T" (telephoto) position and then shooting at the "W" (wide-angle) position. This makes focusing easier.

When you shoot close to the subject
Focus at the end of the "W" (wide-angle) position.

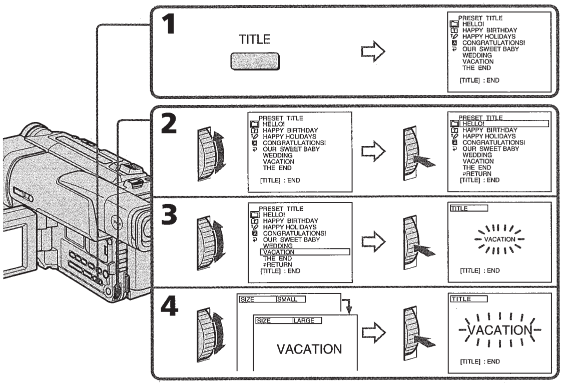
Ⓕ changes to the following indicators:
▲ when recording a distant subject.
● when the subject is too close to focus on.

Superimposing a title

You can select one of eight preset titles and two custom titles (p. 47). You can also select the language, color, size and position of titles.



(1) Press TITLE in the standby mode.
(2) Turn the SEL/PUSH EXEC dial to select 🗀, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the desired title, then press the dial. The titles are displayed in the language you selected.
(4) Change the color, size, or position, if necessary.
① Turn the SEL/PUSH EXEC dial to select the color, size, or position, then press the dial. The item appears.
② Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
③ Repeat steps ① and ② until the title is laid out as desired.
(5) Press the SEL/PUSH EXEC dial again to complete the setting.
(6) Press START/STOP to start recording.
(7) When you want to stop recording the title, press TITLE.



To superimpose the title while you are recording

Press TITLE while you are recording, and carry out steps 2 to 5. When you press the SEL/PUSH EXEC dial at step 5, the title is superimposed.

To select the language of a preset title

If you want to change the language, select 🅰 before step 2. Then select the desired language and return to step 2.

Superimposing a title

Note
Both the date and time or either of them may not be displayed depending on the size or position of the title.

If you display the menu or title menu while superimposing a title
The title is not recorded while the menu or title menu is displayed.

To use the custom title
If you want to use the custom title, select ⊡ in step 2.
If you have not made any custom title, "– – – – ..." appears on the display.

Title setting

- The title color changes as follows :
  WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
- The title size changes as follows :
  SMALL ←→ LARGE
  You cannot input more than 13 characters in LARGE size.
- The title position changes as follows :
  1←→ 2←→ 3←→ 4←→ 5←→ 6←→ 7←→ 8←→ 9
  The larger the position number, the lower the title is positioned.
  When you select the title size "LARGE", you cannot choose position 9.
  When you select the title size "LARGE" in the CINEMA mode, you cannot choose position 8 nor 9.

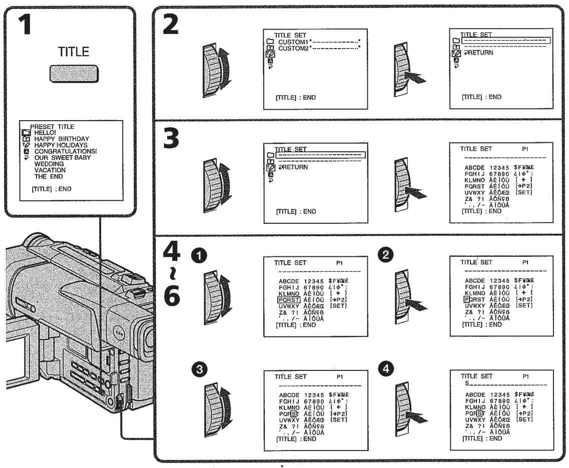
When you are selecting and setting the title
You cannot superimpose the title displayed on the screen.

When you superimpose a title while you are recording
The beep does not sound.

Making your own titles

You can make up to two titles and store them in your camcorder. Each title can have up to 20 characters.

(1) Press TITLE in the standby or VTR (CCD-TRV87)/PLAYER (CCD-TRV37/TRV57/TRV67) mode.
(2) Turn the SEL/PUSH EXEC dial to select ✎, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the first line (CUSTOM1) or second line (CUSTOM2), then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.
(6) Repeat steps 4 and 5 until you have selected all characters and completed the title.
(7) To finish making your own titles, turn the SEL/PUSH EXEC dial to select [SET], then press the dial. The title is stored in memory.
(8) Press TITLE to make the title menu disappear.



To change a title you have stored

In step 3, select CUSTOM1 or CUSTOM2, depending on which title you want to change, then press the SEL/PUSH EXEC dial. Turn the SEL/PUSH EXEC dial to select [←], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

If you take 5 minutes or longer to enter characters in the standby mode while a cassette is in your camcorder
The power automatically goes off. The characters you have entered remain stored in memory. Turn STANDBY down once and then up again, then proceed from step 1.
We recommend setting the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67) or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

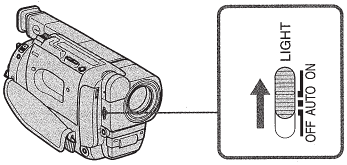
If you select [→P2]
The menu for selecting alphabet and Russian characters appear. Select [→P1] to return to the previous screen.

To delete the title
Select [←]. The last character is erased.

Using the built-in light

You can use the built-in light to suit your shooting situation. The recommended distance between the subject and camcorder is about 5 feet (1.5 m).

Slide LIGHT to ON while your camcorder is in the standby mode. The built-in light turns on.
The built-in light turns on/off by turning STANDBY to STANDBY/LOCK.



To turn off the built-in light

Slide LIGHT to OFF.

To turn on the built-in light automatically

Slide LIGHT to AUTO.
The built-in light automatically turns on and off according to the ambient brightness. However, the built-in light automatically turns off if the built-in light turns on for more than about 5 minutes. In this case, turn STANDBY down once and up again.

CAUTION

Be careful not to touch the lighting section, because the plastic window and surrounding surfaces are hot while the light is on. It remains hot for a while after the light is turned off.

DANGER

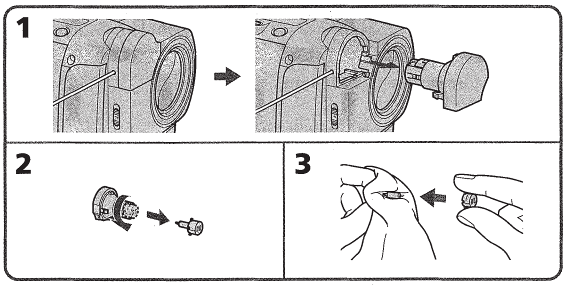
Not to be handled by children.
Emits intense heat and light.
Use with caution to reduce the risk of fire or injury to persons.
Do not direct light at persons or materials from less than 4 feet (1.22 m) during use and until cool.
Slide LIGHT to OFF when not in use.

Notes
- The battery pack is quickly discharging while the built-in light is turned on. Slide LIGHT to OFF when not in use.
- When you do not use your camcorder, slide LIGHT to OFF and remove the battery pack to avoid turning on the built-in light.
- When flickering occurs while shooting in the auto mode, slide LIGHT to ON.
- The built-in light may turn on/off when you use the PROGRAM AE or backlight function while shooting in the auto mode.
- The built-in light may be turned off when inserting or ejecting a cassette.
- While the end search function is working, the built-in light is turned off.

Replacing the bulb

Use the Sony XB-3D halogen lamp (not supplied). The supplied halogen lamp is not on the market. Purchase the Sony XB-3D halogen lamp.
Remove the power source before replacing the bulb.

(1) Remove the built-in light unit while pushing the hole under the built-in light unit using a wire.
(2) Turn the bulb housing counterclockwise and detach from the built-in light unit.
(3) Replace the bulb using a dry cloth.
(4) Attach the bulb housing turning it clockwise, then replace the built-in light unit.



CAUTION

- When replacing the bulb, use only the Sony XB-3D halogen lamp (not supplied) to reduce the risk of fire.
- To prevent possible burn hazard, disconnect the power source before replacing and do not touch the bulb until the bulb becomes cool enough to handle (for about 30 minutes or more).

Note
To prevent the bulb from being smudged with finger prints, handle it with a dry cloth, etc. If the bulb is smudged, wipe it completely.

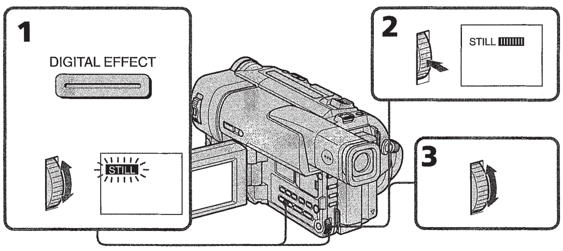
— Advanced Playback Operations —

Playing back a tape with digital effects

– CCD-TRV87 only

During playback, you can process a scene using the digital effect functions: STILL, FLASH, LUMI. and TRAIL.

(1) During playback, press DIGITAL EFFECT and turn the SEL/PUSH EXEC dial until the desired digital effect indicator (STILL, FLASH, LUMI. or TRAIL) flashes.
(2) Press the SEL/PUSH EXEC dial.
The digital effect indicator lights up and the bars appear. In the STILL or LUMI. mode, the picture where you press the SEL/PUSH EXEC dial is stored in memory as a still picture.
(3) Turn the SEL/PUSH EXEC dial to adjust the effect.
For details of each digital effect function, see page 38.



To cancel the digital effect function

Press DIGITAL EFFECT.

Notes
- You cannot process externally input scenes using the digital effect function.
- To record pictures that you have processed using the digital effect function, record the pictures on the VCR.

STILL and LUMI. modes
- You can search a picture to image-process by pressing ▶▶ or ◀◀ in the playback mode. However, noise appears on the picture.
- You cannot delete a picture stored in memory even if you stop playing back a tape.

When you set the POWER switch to OFF (CHARGE)
The digital effect function is automatically canceled.

— Editing —

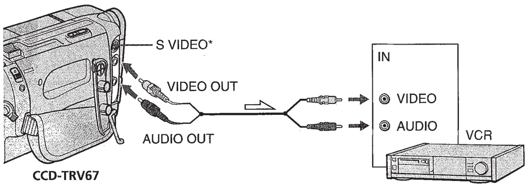
Dubbing a tape

Using the A/V connecting cable or S video connecting cable (not supplied)

Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Set the input selector on the VCR to LINE.
Refer to the operating instructions of your VCR for more information.
(3) Set the POWER switch to VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67).
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR.
Refer to the operating instructions of your VCR for more information.

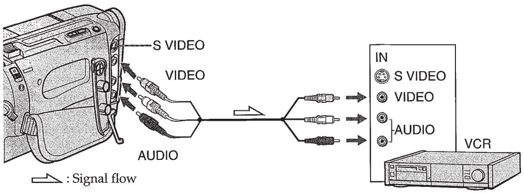
CCD-TRV37/TRV57/TRV67


S VIDEO*
VIDEO OUT
AUDIO OUT
IN
VIDEO
AUDIO
VCR
CCD-TRV67

⇨ : Signal flow

* CCD-TRV67 only

CCD-TRV87


S VIDEO
VIDEO
AUDIO
IN
S VIDEO
VIDEO
AUDIO
VCR

⇨ : Signal flow

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

To prevent deterioration of pictures from dubbing

Set EDIT to ON in the menu settings before dubbing.

If you have displayed the screen indicators on the TV
Make the indicators disappear by pressing DISPLAY so that they will not be superimposed on the edited tape.

You can edit on VCRs that support the following systems
8 8 mm, Hi8 Hi8, D Digital8, VHS VHS, SVHS S-VHS, VHSC VHSC, SVHSC S-VHSC, β Betamax, ED Beta ED Betamax, Mini DV mini DV or DV DV

If your VCR is a monaural type (CCD-TRV87 only)
Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR. You do not connect the red plug. With this connection, the sound will be monaural.

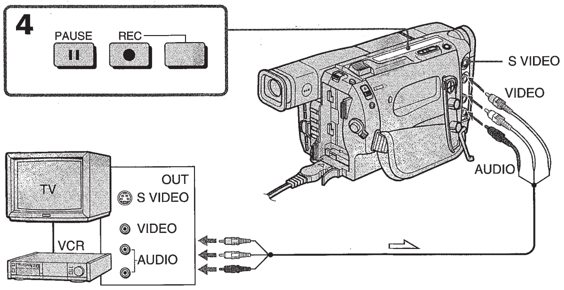
Connect using an S video cable (not supplied) to obtain high-quality pictures (CCD-TRV67/TRV87 only)
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and the VCR.

Recording video or TV programs

– CCD-TRV87 only

You can record a tape from another VCR or a TV program from a TV that has video/audio outputs. Use your camcorder as a recorder. Turn down the volume of your camcorder while editing. Otherwise, the picture may be distorted.

(1) Insert a blank tape (or a tape you want to record over) into your camcorder. If you are recording a tape from the VCR, insert a recorded tape into the VCR.
(2) Set the POWER switch to VTR.
(3) Set DISPLAY to LCD in the menu settings (p. 55). The picture from a TV or VCR appears in the viewfinder or on the LCD screen.
(4) Press ● REC and the button on its right simultaneously on your camcorder, then immediately press ❚❚ on your camcorder.
(5) Press ► on the VCR to start playback if you are recording a tape from VCR. Select a TV program if you are recording from TV.
(6) Press ❚❚ on your camcorder at the scene where you want to start recording from.


4
PAUSE
REC
S VIDEO
VIDEO
AUDIO
TV
VCR
OUT
S VIDEO
VIDEO
AUDIO

⇨ : Signal flow

Note
You cannot record dual sound broadcasts.

If your VCR is a monaural type
Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR (you do not connect the red plug). With this connection, the sound will be monaural.

Connect using an S video cable (not supplied) to obtain high-quality pictures
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and VCR.

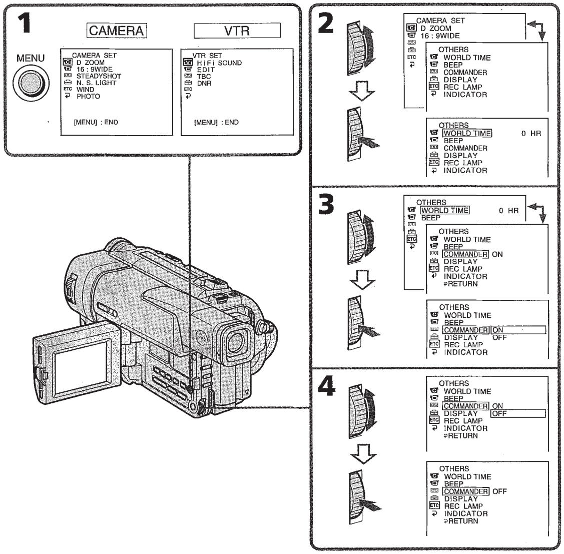
If your VCR or TV does not have an S VIDEO OUT jack
Do not connect an S video cable (not supplied) to your camcorder. If you connect an S video cable, the picture may not appear on screen.

— Customizing Your Camcorder —

Changing the menu settings

To change the mode settings in the menu settings, select the menu items with the SEL/PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

(1) In the standby or VTR (CCD-TRV87)/PLAYER (CCD-TRV37/TRV57/TRV67) mode, press MENU.
(2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
(3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
(4) Turn the SEL/PUSH EXEC dial to select the desired mode, and press the dial to set.
(5) If you want to change other items, select ⮐ RETURN and press the dial, then repeat steps from 2 to 4.
For details, see "Selecting the mode setting of each item" (p. 56).


1
CAMERA
VTR
MENU
CAMERA SET
D ZOOM
16 : 9WIDE
STEADYSHOT
N. S. LIGHT
WIND
PHOTO
[MENU] : END
VTR SET
HiFi SOUND
EDIT
TBC
DNR
[MENU] : END
2
CAMERA SET
D ZOOM
16 : 9WIDE
OTHERS
WORLD TIME
BEEP
COMMANDER
DISPLAY
REC LAMP
INDICATOR
OTHERS
WORLD TIME 0 HR
BEEP
COMMANDER
DISPLAY
REC LAMP
INDICATOR
3
OTHERS
WORLD TIME 0 HR
BEEP
OTHERS
WORLD TIME
BEEP
COMMANDER ON
DISPLAY
REC LAMP
INDICATOR
RETURN
OTHERS
WORLD TIME
BEEP
COMMANDER ON
DISPLAY OFF
REC LAMP
INDICATOR
4
OTHERS
WORLD TIME
BEEP
COMMANDER ON
DISPLAY OFF
REC LAMP
INDICATOR
RETURN
OTHERS
WORLD TIME
BEEP
COMMANDER OFF
DISPLAY
REC LAMP
INDICATOR
RETURN

To make the menu display disappear

Press MENU.

Changing the menu settings

Menu items are displayed as the following icons:
C CAMERA SET
V VTR SET (CCD-TRV87 only)
P PLAYER SET (CCD-TRV37/TRV57/TRV67 only)
▭ LCD SET
▣ TAPE SET
⊟ SETUP MENU
ETC OTHERS

Depending on your camcorder model
The menu display may be different from that in this illustration.

Selecting the mode setting of each item ● is the default setting.

Menu items differ according to whether the POWER switch is set to VTR (CCD-TRV87)/ PLAYER(CCD-TRV37/TRV57/TRV67) or CAMERA.
The LCD screen shows only the items you can operate at the moment.

Icon/item	Mode	Meaning	POWER switch
C **D ZOOM**	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	CAMERA
	40× 200×	If you set to 40×/200×, digital zoom is activated and more than 20× to 40×/200× is performed digitally. (p. 18) (CCD-TRV37 only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 360×	If you set to 40×/360× , digital zoom is activated and more than 20× to 40×/360× is performed digitally. (p. 18) (CCD-TRV57/TRV67/TRV87 only)	
16:9WIDE	● OFF	—	CAMERA
	CINEMA	To record in the CINEMA mode (p. 32)	
	16:9FULL	To record in the 16:9FULL mode	
STEADYSHOT (CCD-TRV57/ TRV67/TRV87 only)	● ON	To compensate for camera-shake	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S.LIGHT	● ON	To use the NightShot Light function (p. 21)	CAMERA
	OFF	To cancel the NightShot Light function	
WIND (CCD-TRV87 only)	● OFF	—	CAMERA
	ON	To reduce wind noise when recording in strong wind	
PHOTO (CCD-TRV87 only)	● NORMAL	To activate the normal photo function	CAMERA
	FADE	To activate the fade photo function	
	SHUTTER	To activate the shutter photo function	

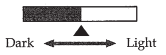
Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
V **HiFi SOUND** P (CCD-TRV87 only)	● STEREO	To play back a stereo tape or dual sound track tape	VTR
	1	To play back a monaural tape or dual sound track tape with main sound	
	2	To play back a dual sound track tape with sub sound	
EDIT	● OFF	—	VTR/PLAYER
	ON	To minimize picture deterioration when editing	
TBC	● ON	To correct jitter	VTR/PLAYER
	OFF	To not correct jitter. Set TBC to OFF when playing back a tape on which you have dubbed over and recorded the signal of a TV game or similar machine.	

TBC stands for "Time Base Corrector".

Icon/item	Mode	Meaning	POWER switch
DNR	● ON	To reduce picture noise	VTR/PLAYER
	OFF	To reduce a conspicuous afterimage when the picture has a lot of movement	

DNR stands for "Digital Noise Reduction".

Icon/item	Mode	Meaning	POWER switch
▭ **LCD B. L.**	● BRT NORMAL	To set the brightness on the LCD screen normal	VTR/PLAYER CAMERA
	BRIGHT	To brighten the LCD screen	
LCD COLOR		To adjust the color on the LCD screen  	VTR/PLAYER CAMERA

Notes on the SteadyShot function (CCD-TRV57/TRV67/TRV87 only)
- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (not supplied) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9FULL mode. If you set STEADYSHOT to ON in the menu settings, the ✋ indicator flashes.

If you cancel the SteadyShot function (CCD-TRV57/TRV67/TRV87 only)
The SteadyShot off indicator ✋ appears. Your camcorder prevents excessive compensation for camera-shake.

In more than 5 minutes after removing the power source
The "WIND" (CCD-TRV87 only) "COMMANDER" (CCD-TRV57/TRV67/TRV87 only), "EDIT" and "HiFi SOUND" (CCD-TRV87 only) items are returned to their default settings.
The other menu items are held in memory even when the battery is removed, as long as the lithium battery is installed.

Note on LCD B.L.
When you use power sources other than the battery pack, "BRIGHT" is automatically selected.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
▣ **REC MODE**	● SP	To record in SP (Standard Play) mode	VTR CAMERA
	LP	To increase the recording time to twice the SP mode	
ORC TO SET		To automatically adjust the recording condition to get the best possible recording. Press START/STOP to start adjustment. Your camcorder takes about 10 seconds to check the tape condition and then returns to the standby mode.	CAMERA

ORC stands for "Optimizing the Recording Condition".

Icon/item	Mode	Meaning	POWER switch
▣**REMAIN**	● AUTO	To display the remaining tape bar: • for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape • for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • for about 8 seconds after ► is pressed in VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67) mode • for about 8 seconds after DISPLAY is pressed to display the screen indicators • for the period of tape rewinding, forwarding or picture search in the VTR (CCD-TRV87) or PLAYER (CCD-TRV37/TRV57/TRV67) mode	VTR/PLAYER CAMERA
	ON	To always display the remaining tape bar	

Notes on the LP mode
- When you record a tape in the LP mode on your camcorder, we recommend playing the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- Noise may occur also when you play on your camcorder tapes recorded in the LP mode on other camcorders or VCRs.
- When you record a tape in the LP mode on your camcorder, recording is carried out in the standard 8 mm system. (CCD-TRV67/TRV87 only)

Notes on ORC setting
- Each time you eject the cassette, the ORC setting will be canceled. If necessary, reset the setting.
- You cannot use this setting on a tape with the red mark on the cassette exposed. (i. e. the tape is write-protected)
- When you set ORC TO SET, a non-recorded section of about 0.1 seconds appears on the tape. However, note that this non-recorded section disappears from the tape when you continue recording from this section.
- To check if you have already set the ORC setting, select ORC TO SET in the menu settings. "ORC ON" is displayed if ORC TO SET is already set.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
⊟ **CLOCK SET**		To reset the date or time (p. 61)	CAMERA
AUTO DATE	● ON	To record the date for 10 seconds after recording has started	CAMERA
	OFF	To cancel the auto date function	
AUTO TV ON (CCD-TRV87 only)	● OFF	—	VTR CAMERA
	ON	To automatically turn on the Sony TV when using the super laser link function (p. 29)	
TV INPUT (CCD-TRV87 only)	● VIDEO1 VIDEO2 VIDEO3	To switch the video input on a Sony TV when using the super laser link function (p. 29)	VTR CAMERA
	OFF	—	
LTR SIZE	● NORMAL	To display selected menu items in normal size	VTR/PLAYER CAMERA
	2×	To display selected menu items at twice the normal size	
DEMO MODE	● ON	To make the demonstration appear	CAMERA
	OFF	To cancel the demonstration mode	

Notes on DEMO MODE
- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted.
  To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF.
- When NIGHTSHOT is set to ON, the NIGHTSHOT indicator appears in the viewfinder or on the LCD screen and you cannot select DEMO MODE in the menu settings.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
ETC **WORLD TIME**		To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	VTR/PLAYER CAMERA
	NORMAL	To output the beep sound instead of the melody	
	OFF	To cancel the melody and beep sound	
COMMANDER (CCD-TRV57/TRV67/TRV87 only)	● ON	To activate the Remote Commander supplied with your camcorder	VTR/PLAYER CAMERA
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	● LCD	To show the display on the LCD screen and viewfinder	VTR/PLAYER CAMERA
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	CAMERA
	OFF	To turn the camera recording lamp off so that the subject is not aware of the recording	
INDICATOR (CCD-TRV87 only)	● BL OFF	To turn off the backlight on display window	VTR CAMERA
	BL ON	To turn on the backlight	

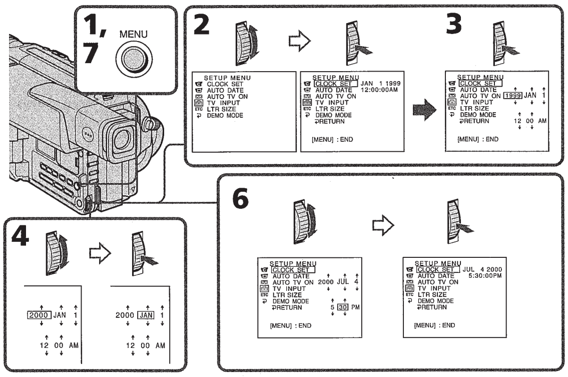
Note (CCD-TRV87 only)
If you press DISPLAY with "DISPLAY" set to "V-OUT/LCD" in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

Notes on INDICATOR (CCD-TRV87 only)
- When you select "BL ON", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BL ON" is automatically selected.

Resetting the date and time

The default clock setting is set to East Coast Standard Time.
The date and time are held in memory by the lithium battery. If you replace the lithium battery with the battery pack or other power source connected, you need not reset the date and time.
You must reset the date and time when the lithium battery becomes dead with no power source installed.
First, set the year, then the month, the day, the hour and then the minute.

(1) While your camcorder is in the standby mode, press MENU to display the menu.
(2) Turn the SEL/PUSH EXEC dial to select ⊟, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select CLOCK SET, then press the dial.
(4) Turn the SEL/PUSH EXEC dial to adjust the desired year, then press the dial.
(5) Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
(6) Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
(7) Press MENU to make the menu disappear. The time indicator appears.



Resetting the date and time

To check the preset date and time

Press DATE to display the date indicator.
Press TIME to display the time indicator.
Press DATE (or TIME) and then press TIME (or DATE) to simultaneously display the date and time indicator.
Press DATE and/or TIME again. The date and/or time indicator disappears.

The year changes as follows:

1999 ↔ 2000 ← · · · · → 2029

Auto date function
When you use your camcorder for the first time, turn it on and reset the date and time to your time before you start recording (p. 61). The date is automatically recorded for 10 seconds after you start recording **(Auto date function)**. This function works only once a day.

Note on the time indicator
The internal clock of your camcorder operates on a 12-hour cycle.
- 12:00 AM stands for midnight.
- 12:00 PM stands for noon.

Note on the auto date function
You can change the AUTO DATE setting by selecting ON or OFF in the menu settings.
The auto date function automatically displays the date once a day.
However, the date may automatically appear more than once a day if:
– you reset the date and time.
– you eject and insert the tape again.
– you stop recording within 10 seconds.
– you set AUTO DATE to OFF once and set it back ON in the menu settings.

— Additional Information —

Usable cassettes and playback modes

Selecting the cassette type

– CCD-TRV67/TRV87 only

You can use both Hi8 and standard 8 mm video cassettes on your camcorder. When you use a Hi8 video cassette, recording and playback are carried out in the Hi8 system.
When you use a standard 8 mm video cassette, recording and playback are carried out in the standard 8 mm system.
However, if you record on a Hi8 video cassette in the LP mode, recording is carried out in the standard 8 mm system.
If you play back a tape recorded on a different video recorder on your camcorder, the playback mode is automatically selected according to the format in which the tape has been recorded.

This Hi8 system is an extension of the standard 8 mm system, and was developed to produce higher quality pictures.
You cannot playback a tape recorded in the Hi8 system correctly on video recorder/players other than a Hi8 video recorder/player.

What is Video 8 XR/video Hi8 XR ?

– CCD-TRV37/TRV57/TRV87 only

"Video 8 XR"/"video Hi8 XR" is a function that further enhances the image quality of Video 8/video Hi8. This function allows you to record and playback pictures with clearer details.
Video tapes recorded on a camcorder having the "XR" function show excellent picture quality when they are played back on an "XR" camcorder.
The playback quality will be the normal quality of the standard 8mm/Hi8 camcorder when video tapes recorded on an "XR" camcorder are played back by a conventional standard 8mm/Hi8 camcorder or when video tapes recorded on a conventional standard 8mm/Hi8 camcorder are played back on the "XR" camcorder.
* "XR" stands for "Extended Resolution."

When you play back

The playback mode (SP/LP) and system, Hi8 or standard 8 mm (CCD-TRV67/TRV87 only) are automatically selected according to the format in which the tape has been recorded. The quality of the recorded picture in the LP mode, however, will not be as good as the SP mode.

Note on AFM HiFi stereo

– CCD-TRV87 only
When you play back a tape, the sound will be monaural if:
- You record the tape on your camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on your camcorder.

Foreign 8 mm video

Because TV color systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to "Using your camcorder abroad" to check the TV color systems used in foreign countries.

Copyright signal

When you record

– CCD-TRV87 only

You cannot record software on your camcorder that contains copyright control signals for copyright protection of software.
"COPY INHIBIT" appears on the LCD screen, in the viewfinder or on the TV screen if you try to record such software.
Your camcorder does not record copyright control signals on the tape when it records.

When you play back a dual sound track tape

– CCD-TRV87 only

When you play back a dual sound track tape recorded in an AFM HiFi stereo system, set "HiFi SOUND" to the desired mode in the menu settings (p. 55).

Sound from speaker

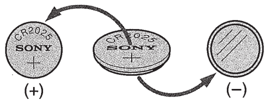
HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Monaural	Main sound
2	Unnatural sound	Sub sound

You cannot record dual sound programs on your camcorder.

Changing the lithium battery in your camcorder

When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu settings hold in memory by the lithium battery.

Insert the battery with the positive (+) side facing out. When the battery becomes weak or dead, the 🔋 indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 or Duracell DL-2025 lithium battery. Use of any other battery may present a risk of fire or explosion.** Discard used batteries according to the manufacturer's instructions.



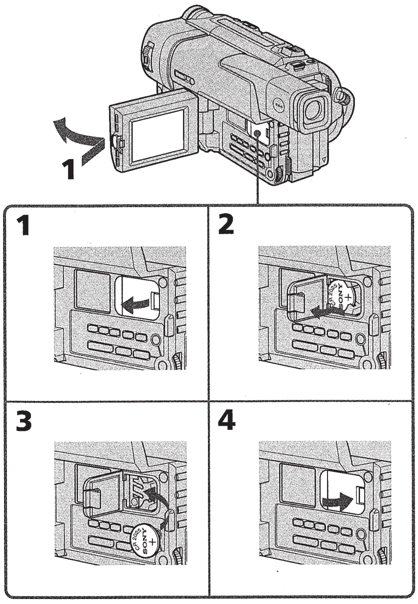
WARNING
The battery may explode if mistreated. Do not recharge, disassemble, nor dispose of it in fire.

Lithium battery
- Keep the lithium battery out of the reach of children.
- Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to ensure good contact.

Lithium battery installed at the factory
This battery may not last 1 year.

Changing the lithium battery

(1) Open the LCD panel and open the lid of the lithium battery compartment.
(2) Push the lithium battery down once and pull it out from the holder.
(3) Install a Sony CR2025 or Duracell DL-2025 lithium battery with the positive (+) side facing out.
(4) Close the lid.



Troubleshooting

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If "C:□□:□□" appears on the LCD screen or in the viewfinder, the self-diagnosis display function has worked. See page 70.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is set to OFF (CHARGE) or VTR (CCD-TRV87)/PLAYER (CCD-TRV37/TRV57/TRV67). → Set it to CAMERA. (p. 16) • STANDBY is set to LOCK. → Turn STANDBY to STANDBY. (p. 16) • The tape has run out. → Rewind the tape or insert a new one. (p. 15, 24) • The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab. (p. 15) • The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)
The power goes off.	• While being operated in the CAMERA mode, your camcorder has been in the standby mode for more than 5 minutes. → Turn STANDBY down once and then up again. (p. 16)
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 19)
The SteadyShot function does not work. (CCD-TRV57/TRV67/TRV87 only)	• STEADYSHOT is set to OFF in the menu settings. → Set it to ON. (p. 55) • The SteadyShot function does not work when the wide mode is set to 16:9FULL.
The autofocusing function does not work.	• FOCUS is set to MANUAL. → Set it to AUTO. (p. 44) • Shooting conditions are not suitable for autofocus. → Set FOCUS to MANUAL to focus manually. (p. 44)
The fader function does not work. (CCD-TRV87 only)	• The digital effect function is working. → Cancel it. (p. 38)
The ⊗ indicator flashes in the viewfinder.	• The video heads may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel. (p. 17)
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.

(Continued on the following page)

Symptom	Cause and/or Corrective Actions
Some tiny white spots appear in the viewfinder or on the LCD screen. (CCD-TRV87 only)	• Slow shutter, low lux or Super NightShot mode is activated. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 59)
The picture is recorded in incorrect or unnatural colors.	• NIGHTSHOT is set to ON. → Set it to OFF. (p. 21)
Picture appears too bright, and the subject does not appear in the viewfinder or on the LCD screen.	• NIGHTSHOT is set to ON in a bright place. → Set it to OFF, or use the NightShot function in a dark place. (p. 21)

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	• The POWER switch is set to CAMERA or OFF (CHARGE). → Set it to VTR (CCD-TRV87)/PLAYER (CCD-TRV37/TRV57/TRV67). (p. 24) • The tape has run out. → Rewind the tape. (p. 24)
The playback picture is not clear or does not appear.	• The television's video channel is not adjusted correctly. → Adjust it. (p. 27) • EDIT is set to ON in the menu settings. → Set it to OFF. (p. 55) • The video head may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
No sound or only a low sound is heard when playing back a tape.	• The stereo tape is played back with HiFi SOUND set to 2 in the menu settings (CCD-TRV87 only). → Set it to STEREO. (p. 55) • The volume is turned to minimum. → Turn up the volume. (p. 24)
The sound is muted or images do not appear when monitoring the picture from TV on the LCD screen. (CCD-TRV87 only)	→ Pull out A/V connecting cable from AUDIO/VIDEO jack, then connect it again.

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack. (p. 9, 10) • The AC power adaptor is not connected to a wall outlet. → Connect the AC power adaptor to a wall outlet. (p. 4, 14)
The end search function does not work.	• The tape was ejected after recording. • You have not recorded on the new cassette yet.

Symptom	Cause and/or Corrective Actions
The battery pack is quickly discharged.	• The operating temperature is too low. • The battery pack is not fully charged. → Charge the battery pack again. (p. 10) • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 9)
The battery remaining indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 9) • The battery is dead. → Use a charged battery pack. (p. 9, 10)
The power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate.	→ Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.
The cassette cannot be removed from the holder.	• The power source is disconnected. → Connect it firmly. (p. 9, 14) • The battery is dead. → Use a charged battery pack. (p. 9, 10)
The ▣ and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)

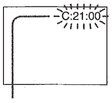
Others

Symptom	Cause and/or Corrective Actions
The Remote Commander supplied with your camcorder does not work. (CCD-TRV57/TRV67/TRV87 only)	• COMMANDER is set to OFF in the menu settings. → Set it to ON. (p. 55) • Something is blocking the infrared rays. → Remove the obstacle. • The batteries inserted in the battery holder with the + – polarities incorrectly matching the + – marks. → Insert the batteries with the correct polarity. (p. 84) • The batteries are dead. → Insert new ones. (p. 84)
The date or time indicator does not appear, and the bars "--:--:--" appear.	• Reset the date and time. (p. 61)
The picture from a TV or VCR does not appear even when your camcorder is connected to outputs on the TV or VCR. (CCD-TRV87 only)	• DISPLAY is set to V-OUT/LCD in the menu settings. → Set it to LCD. (p. 55)
The melody or beep sounds for 5 seconds.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73) • Some troubles has occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	• The AC power adaptor is disconnected. → Connect it firmly. (p. 10) • Something is wrong with the battery pack. → Contact your Sony dealer or local authorized Sony service facility.

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) in the viewfinder, on the LCD screen or in the display window. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

Viewfinder (or LCD screen)



Self-diagnosis display
- C:□□:□□
  You can service your camcorder yourself.
- E:□□:□□
  Contact your Sony dealer or local authorized Sony facility.

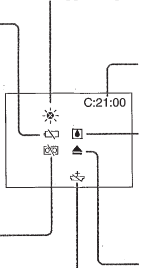
Five-digit display	Cause and/or Corrective Actions
C:04:□□	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 14)
C:21:□□	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 73)
C:22:□□	• The video heads are dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 74)
C:31:□□ C:32:□□	• A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the power cord of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
E:61:□□ E:62:□□	• A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (example: E:61:10)

If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

Warning indicators and messages

If indicators and messages appear in the viewfinder, on the LCD screen or in the display window, check the following:
See the page in parentheses "( )" for more information.
The indicators and messages are displayed in yellow.

Warning indicators



The video heads are dirty
Slow flashing:
- You need to clean the heads using the Sony V8-25CLD cleaning cassette (not supplied) (p. 74).

The battery is dead or nearly dead
Slow flashing:
- The battery is nearly dead.

Fast flashing:
- The battery is dead (p. 10)
- The battery is completely dead, and cannot be recharged.

Depending on conditions, the 🪫 indicator may flash, even if there are 5 to 10 minutes remaining.

Warning indicator as to tape
Slow flashing:
- The tape is near the end.
- No tape is inserted (p. 15).*
- The write-protect tab on the cassette is out (red) (p. 15).*

Fast flashing:
- The tape has run out (p. 15, 24).*

The lithium battery is weak or is not installed (p. 65)

Self-diagnosis display (p. 70)

Moisture condensation has occurred*
Fast flashing:
- Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open (p. 73).

You need to eject the cassette
Slow flashing:
- The write-protect tab on the cassette is out (red) (p. 15).*

Fast flashing:
- Moisture condensation has occurred (p. 73).
- The tape has run out (p. 15, 24).*
- The self-diagnosis display function is activated (p. 70).*

Warning messages

• CLOCK SET	Reset the date and time. (p. 61)
• For "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack. (p. 14)
• ⊞ CLEANING CASSETTE	The video heads are dirty. (p. 74)
• START/STOP KEY	Press the START/STOP button to activate the ORC setting. This message is displayed in white. (p. 58)
• ORC	The ORC setting is working. This message is displayed in white. (p. 58)
• COPY INHIBIT	You tried to record a picture that has a copyright control signal. (CCD-TRV87 only) (p. 64)

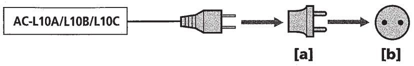
* You hear the melody or beep sound.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

When charging the battery pack, use a commercially available AC plug adaptor **[a]**, if necessary, depending on the design of the wall outlet **[b]**.



Your camcorder is an NTSC system based camcorder. If you want to view the playback picture on a TV, it must be an NTSC system based TV with VIDEO/AUDIO input jack. The following shows TV color systems used overseas.

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

SECAM system
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 60 for more information.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the ▣ indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

Note on moisture condensation
Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:
- You bring your camcorder from a ski slope into a place warmed up by a heating device
- You bring your camcorder from an air-conditioned car or room into a hot place outside
- You use your camcorder after a squall or a shower
- You use your camcorder in a high temperature and humidity place

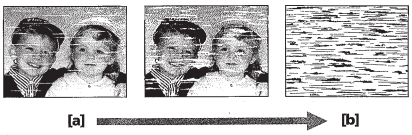
How to prevent moisture condensation
When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Maintenance information

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:
- The ⊗ indicator and "🖭 CLEANING CASSETTE" message appear one after another or the ⊗ indicator flashes on the LCD screen or in the viewfinder.
- Playback pictures contain noise.
- Playback pictures are hardly visible.
- Playback pictures do not appear.

If this happens, clean the video heads with the Sony V8-25CLD cleaning cassette (not supplied).



[a] Slightly dirty
[b] Very dirty

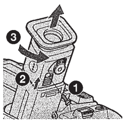
Note on video heads
When the playback pictures are still contain noise even if you have cleaned the video heads with a cleaning cassette, the video heads may have worn down due to long use. If this is the case, they must be replaced with new heads. Contact your Sony dealer or local authorized Sony service facility.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

Removing dust from inside the viewfinder

(1) ❶ Remove the screw with a screwdriver (not supplied). ❷ Then, while holding the RELEASE knob up, ❸ turn the eyecup in a counterclockwise direction and pull it out.
(2) Clean the surface with a commercially available blower for a still camera.
(3) Turn the eyecup in a clockwise direction, then replace the screw.



Caution
Do not remove any other screws. You may remove only the screw to remove the eyecup.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHARGE) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

Built-in light

- Do not knock or jolt the built-in light while it is turned on as it may damage the bulb or shorten the life of the bulb.
- Do not leave the built-in light on while it is resting on or against something; it may cause a fire or damage the built-in light.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- Remove the tape, and periodically turn on the power, operate the CAMERA and VTR (CCD-TRV87)/PLAYER (CCD-TRV37/TRV57/TRV67) sections and play back a tape for about 5 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC power adaptor

- Unplug the unit from the wall outlet when you are not using the unit for a long time. To disconnect the power cord, pull it out by the plug. Never pull the power cord itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the power cord forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.
- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 140°F (60°C), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Notes on dry batteries

– CCD-TRV57/TRV67/TRV87 only

To avoid possible damage from battery leakage or corrosion, observe the following:

- Be sure to insert the batteries with the + – polarities matched to the + – marks.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- Current flows from batteries when you are not using them for a long time.
- Do not use leaking batteries.

If batteries are leaking

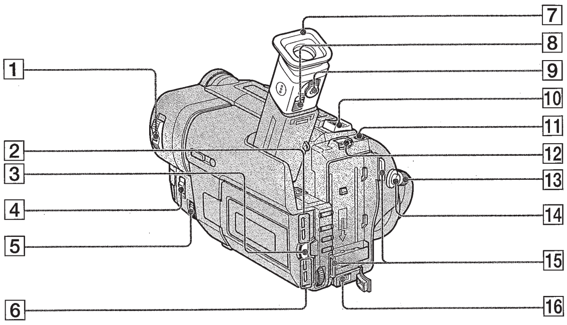
- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

— Quick Reference —

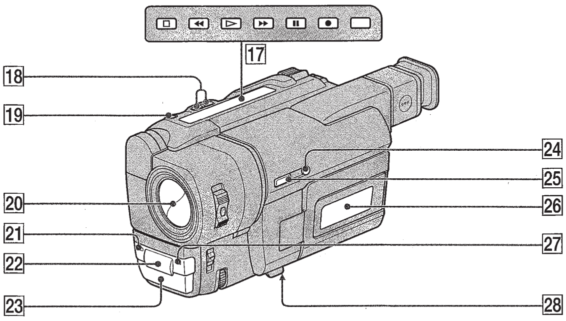
Identifying the parts and controls

Camcorder



1 **POWER switch** (p. 16)
2 **LCD BRIGHT buttons** (p. 17)
3 **OPEN button** (p. 16)
4 **FOCUS switch** (p. 44)
5 **NEAR/FAR dial** (p. 44)
6 **VOLUME buttons** (p. 24)
7 **Eyecup** (p. 74)
8 **Eyecup RELEASE knob** (p. 74)
9 **Viewfinder lens adjustment lever** (p. 19)
10 **Power zoom lever** (p. 18)
11 **PHOTO button** (CCD-TRV87 only) (p. 30)
12 **BATT RELEASE lever** (p. 9)
13 **STANDBY switch** (p. 16)
14 **START/STOP button** (p. 16)
15 **Hooks for shoulder strap** (p. 81)
16 **DC IN jack** (p. 4, 10)

This mark indicates that this product is a genuine accessory for Sony video products.
When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

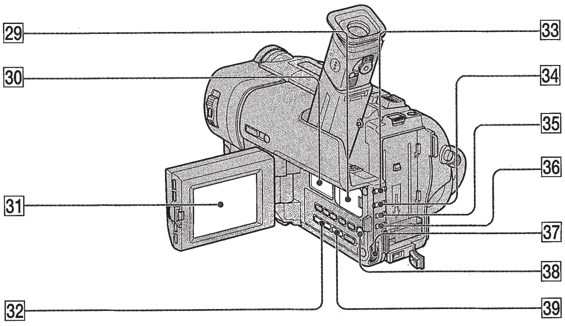


17 **Video control buttons** (p. 24, 26, 54)
■ STOP (stop)
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)
● REC (recording) (CCD-TRV87 only)
18 **EDITSEARCH button** (p. 23)
19 **S.LASER LINK button** (CCD-TRV87 only) (p. 39)
20 **Lens cover** (p. 16)
21 **Camera recording lamp** (p. 16)
22 **Infrared rays emitter** (p. 21, 28)
23 **Microphone**
24 **SUPER NIGHTSHOT button** (CCD-TRV87 only) (p. 21)
25 **NIGHTSHOT switch** (p. 21)
26 **Display window** (p. 85)
27 **Remote sensor** (CCD-TRV57/TRV67/TRV87 only) (p. 84)
28 **Tripod receptacle** (base)
Make sure that the length of the tripod screw is less than 9/32 inch (6.5 mm). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

What is SUPER LASER LINK? (CCD-TRV87 only)

The SUPER LASER LINK system sends and receives pictures and sound between video equipment having the mark by using infrared rays.

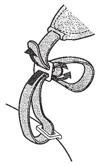
These are trademarks.

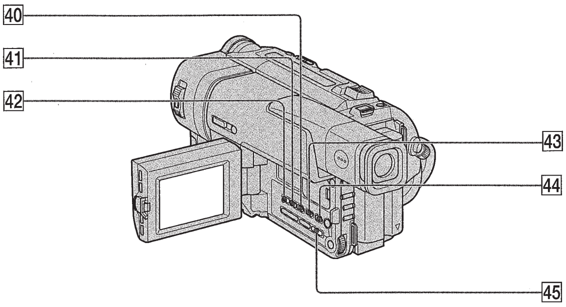


29 **Lithium battery compartment** (p. 65)
30 **Speaker**
31 **LCD screen** (p. 17)
32 **DIGITAL EFFECT button** (CCD-TRV87 only) (p. 39)
33 **FADER button** (p. 35)
34 **BACK LIGHT button** (p. 20)
35 **PROGRAM AE button** (p. 42)
36 **EXPOSURE button** (p. 43)
37 **SEL/PUSH EXEC dial** (p. 55)
38 **MENU button** (p. 55)
39 **PICTURE EFFECT button** (p. 37)

Attaching the shoulder strap

Attach the shoulder strap supplied with your camcordr to the hooks for the shoulder strap.





40 **COUNTER RESET button** (p. 17)

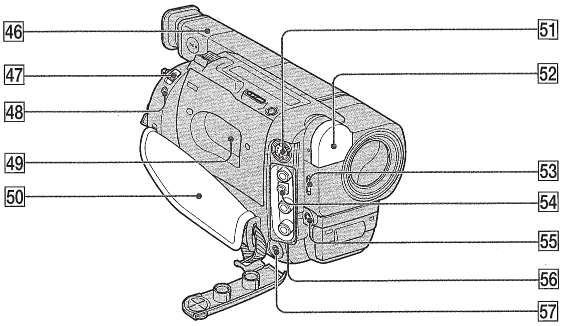
41 **TIME button** (p. 22)

42 **DATE button** (p. 22)

43 **DISPLAY button** (p. 25)

44 **END SEARCH button** (p. 23)

45 **TITLE button** (p. 45)



46 **Viewfinder** (p. 5)

47 **EJECT switch** (p. 15)

48 **LANC ◐ control jack**
LANC stands for Local Application Control Bus System. The ◐ control jack is used for controlling the tape transport of video equipment and other peripherals connected to the video equipment. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

49 **Cassette compartment** (p. 15)

50 **Grip strap**

51 **S VIDEO jack** (CCD-TRV67/TRV87 only) (p. 27)

52 **Built-in light** (p. 49)

53 **LIGHT switch** (p. 49)

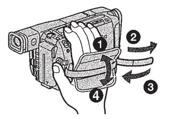
54 **RFU DC OUT (RFU adaptor DC output) jack** (p. 28)

55 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.
If you connect a 2-pin microphone, supply power from DC OUT jack.
In this case, WIND in the menu settings does not function. (CCD-TRV87 only)

56 **AUDIO/VIDEO jacks** (p. 27)

57 **∩ (headphones) jack** (CCD-TRV87 only)/**◎ (earphone) jack** (CCD-TRV37/TRV57/TRV67 only)
When you use headphones(CCD-TRV87 only)/earphone (CCD-TRV37/TRV57/TRV67 only), the speaker on your camcorder is silent.

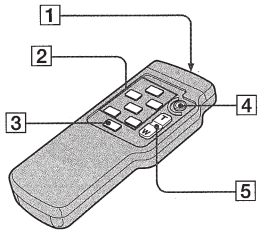
Fastening the grip strap
Fasten the grip strap firmly.



Remote Commander

– CCD-TRV57/TRV67/TRV87 only

The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.



1 **Transmitter**
Point toward the remote sensor to control your camcorder after turning on your camcorder.

2 **Video control buttons** (p. 26)

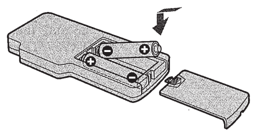
3 **DISPLAY button** (p. 25)

4 **START/STOP button** (p. 16)

5 **Power zoom button** (p. 18)

To prepare the Remote Commander

Insert 2 size AA (R6) batteries by matching the + and – polarities on the batteries to the + – marks inside the battery compartment.

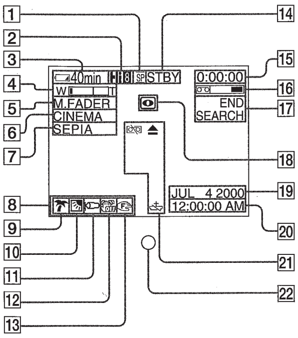


Notes on the Remote Commander

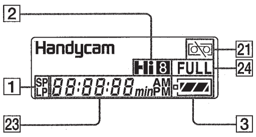
- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

Operation indicators

LCD screen and Viewfinder



Display window



1 **Recording mode indicator** (p. 58)/**Mirror mode indicator** (p. 17)

2 **Hi8 format indicator** (CCD-TRV67/TRV87 only) (p. 20, 63)

3 **Remaining battery time indicator** (p. 20)

4 **Exposure indicator** (p. 43)/**Zoom indicator** (p. 18)

5 **Fader indicator** (p. 35)/**Digital effect indicator** (CCD-TRV87 only) (p. 39)

6 **Wide mode indicator** (p. 32)

7 **Picture effect indicator** (p. 37)

8 **LCD bright indicator** (p. 17)/**Volume indicator** (p. 24)

9 **PROGRAM AE indicator** (p. 41)

10 **Backlight indicator** (p. 20)

11 **Wind indicator** (CCD-TRV87 only) (p. 56)

12 **SteadyShot off indicator** (CCD-TRV57/TRV67/TRV87 only) (p. 57)

13 **Manual focusing indicator** (p. 44)

14 **STBY/REC indicator** (p. 20)/**Video control mode indicator** (p. 26)

15 **Tape counter indicator** (p. 20)/**Self-diagnosis display indicator** (p. 70)/**Photo mode indicator** (CCD-TRV87 only) (p. 30)

16 **Remaining tape indicator** (p. 20)

17 **END SEARCH indicator** (p. 23)

18 **NIGHTSHOT indicator** (p. 21)

19 **AUTO DATE indicator** (p. 62)/**Date indicator** (p. 22, 62)

20 **Time indicator** (p. 22, 62)

21 **Warning indicators** (p. 71)

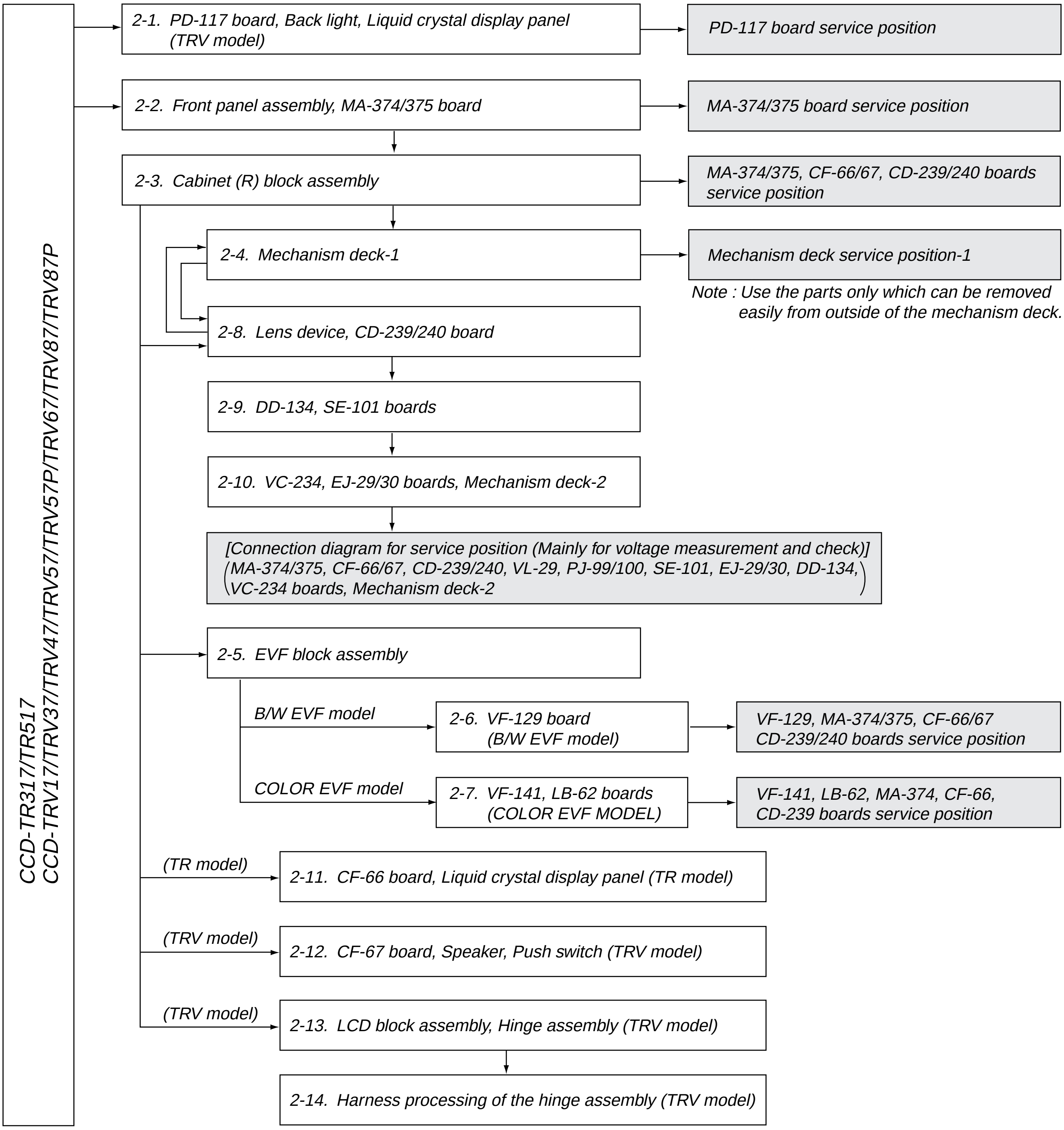
22 **Recording lamp** (p. 16)

23 **Date or time indicator** (p. 22, 62)/**Tape counter indicator** (p. 20)/**Self-diagnosis display indicator** (p. 70)/**Remaining battery time indicator** (p. 10)

24 **FULL charge indicator** (p. 10)

SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.

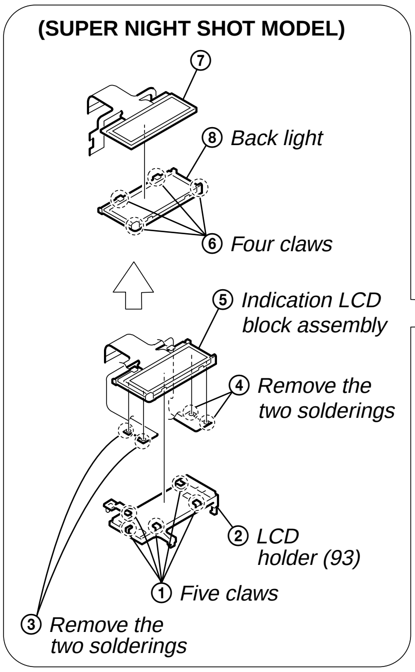

CCD-TR317/TR517
CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
2-1. PD-117 board, Back light, Liquid crystal display panel (TRV model)
PD-117 board service position
2-2. Front panel assembly, MA-374/375 board
MA-374/375 board service position
2-3. Cabinet (R) block assembly
MA-374/375, CF-66/67, CD-239/240 boards service position
2-4. Mechanism deck-1
Mechanism deck service position-1
Note : Use the parts only which can be removed easily from outside of the mechanism deck.
2-8. Lens device, CD-239/240 board
2-9. DD-134, SE-101 boards
2-10. VC-234, EJ-29/30 boards, Mechanism deck-2
[Connection diagram for service position (Mainly for voltage measurement and check)]
(MA-374/375, CF-66/67, CD-239/240, VL-29, PJ-99/100, SE-101, EJ-29/30, DD-134, VC-234 boards, Mechanism deck-2)
2-5. EVF block assembly
B/W EVF model
2-6. VF-129 board (B/W EVF model)
VF-129, MA-374/375, CF-66/67 CD-239/240 boards service position
COLOR EVF model
2-7. VF-141, LB-62 boards (COLOR EVF MODEL)
VF-141, LB-62, MA-374, CF-66, CD-239 boards service position
(TR model)
2-11. CF-66 board, Liquid crystal display panel (TR model)
(TRV model)
2-12. CF-67 board, Speaker, Push switch (TRV model)
(TRV model)
2-13. LCD block assembly, Hinge assembly (TRV model)
2-14. Harness processing of the hinge assembly (TRV model)

TR model	*: CCD-TR317/TR517*
TRV model	*: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P*
Super night shot model	*: CCD-TRV87/TRV87P*
Stereo model	*: CCD-TRV87/TRV87P*
TRV night shot model	*: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67*
Video light model	*: CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P*
No video light model	*: CCD-TR317/TR517/TRV47*
B/W EVF model	*: CCD-TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P*
COLOR EVF model	*: CCD-TR517*

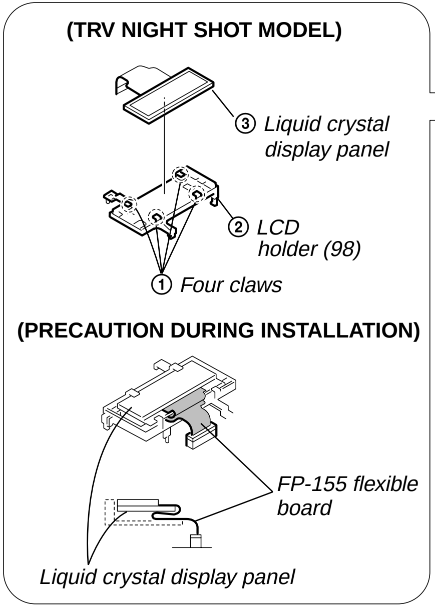
NOTE: Follow the disassembly procedure in the numerical order given.

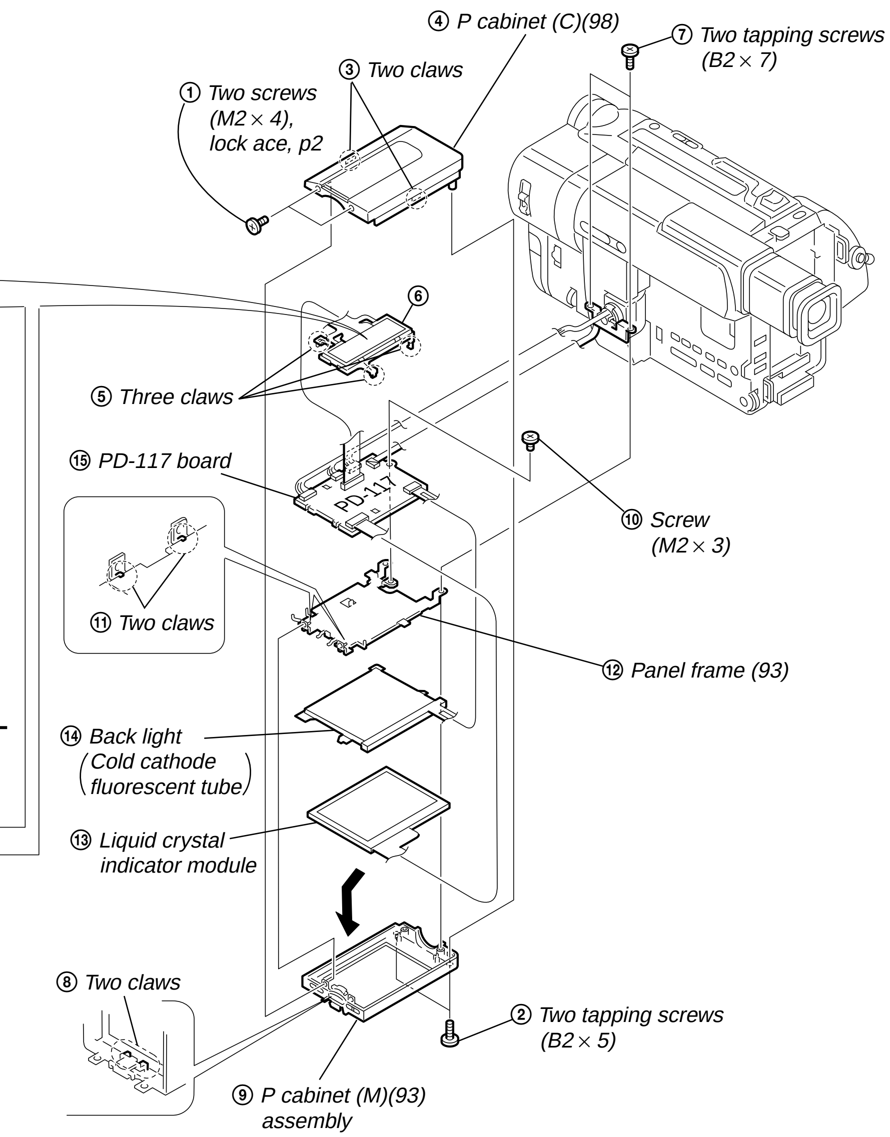
2-1. PD-117 BOARD, BACK LIGHT, LIQUID CRYSTAL DISPLAY PANEL (TRV MODEL)

REMOVING THE BACK LIGHT

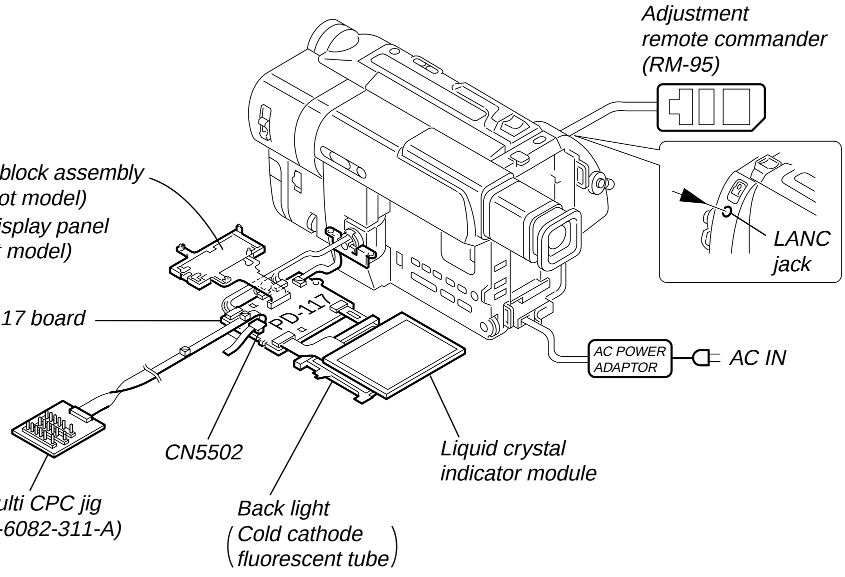

(SUPER NIGHT SHOT MODEL)
⑦
⑧ Back light
⑥ Four claws
⑤ Indication LCD block assembly
④ Remove the two solderings
② LCD holder (93)
① Five claws
③ Remove the two solderings

REMOVING THE LIQUID CRYSTAL DISPLAY PANEL

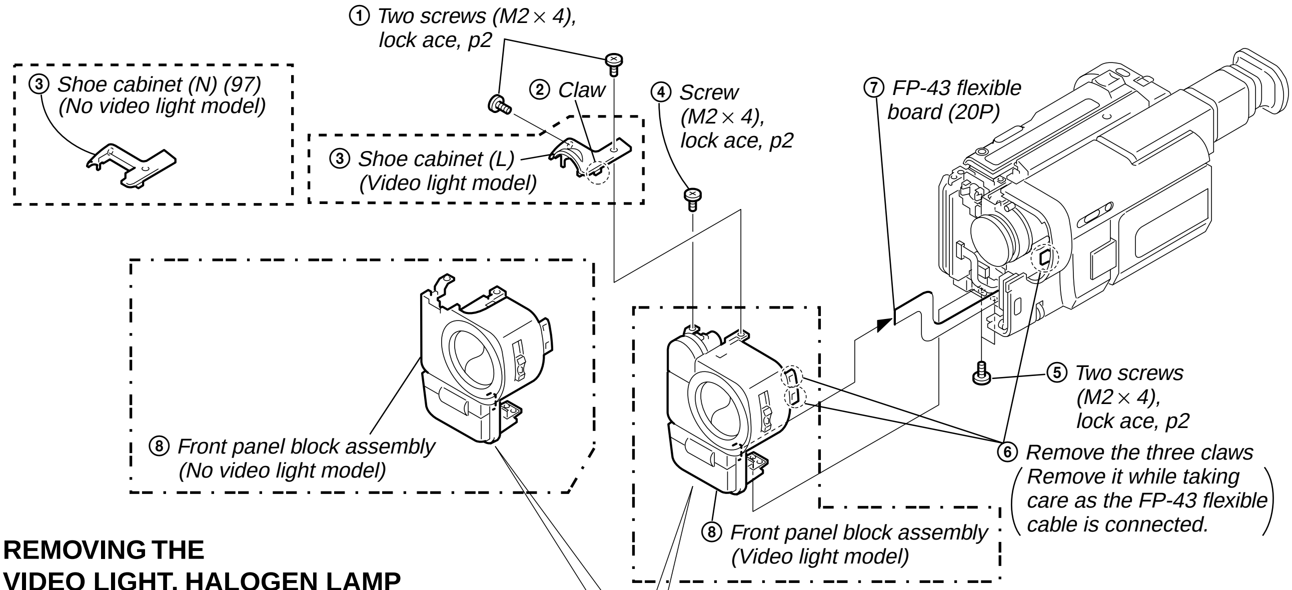

(TRV NIGHT SHOT MODEL)
③ Liquid crystal display panel
② LCD holder (98)
① Four claws
(PRECAUTION DURING INSTALLATION)
FP-155 flexible board
Liquid crystal display panel


④ P cabinet (C)(98)
⑦ Two tapping screws (B2 × 7)
③ Two claws
① Two screws (M2 × 4), lock ace, p2
⑥
⑤ Three claws
⑮ PD-117 board
PD-117
⑩ Screw (M2 × 3)
⑪ Two claws
⑫ Panel frame (93)
⑭ Back light (Cold cathode fluorescent tube)
⑬ Liquid crystal indicator module
⑧ Two claws
② Two tapping screws (B2 × 5)
⑨ P cabinet (M)(93) assembly

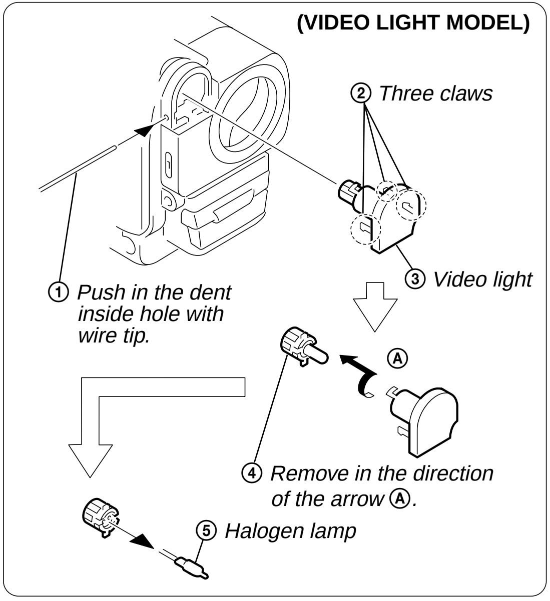
[PD-117 BOARD SERVICE POSITION]


Adjustment remote commander (RM-95)
LANC jack
Indication LCD block assembly (Super night shot model)
Liquid crystal display panel (TRV night shot model)
PD-117 board
PD-117
AC POWER ADAPTOR
AC IN
Multi CPC jig (J-6082-311-A)
CN5502
Back light (Cold cathode fluorescent tube)
Liquid crystal indicator module

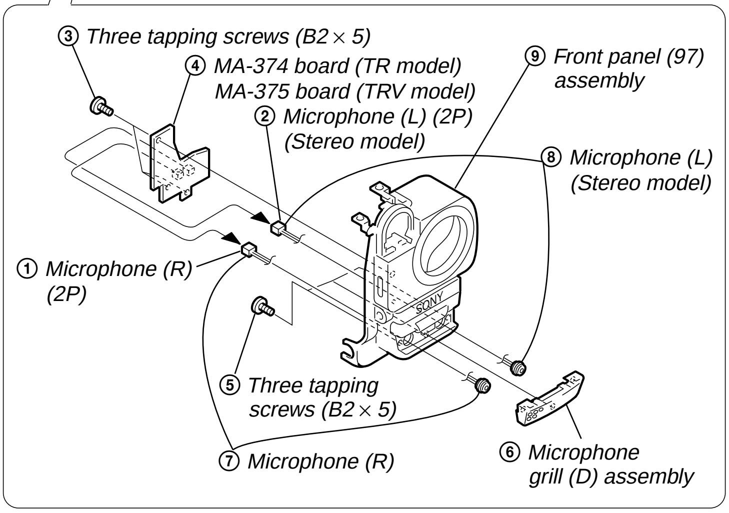
2-2. FRONT PANEL ASSEMBLY, MA-374/375 BOARD


① Two screws (M2 × 4), lock ace, p2
③ Shoe cabinet (N) (97) (No video light model)
② Claw
③ Shoe cabinet (L) (Video light model)
④ Screw (M2 × 4), lock ace, p2
⑦ FP-43 flexible board (20P)
⑤ Two screws (M2 × 4), lock ace, p2
⑥ Remove the three claws
Remove it while taking care as the FP-43 flexible cable is connected.
⑧ Front panel block assembly (No video light model)
⑧ Front panel block assembly (Video light model)

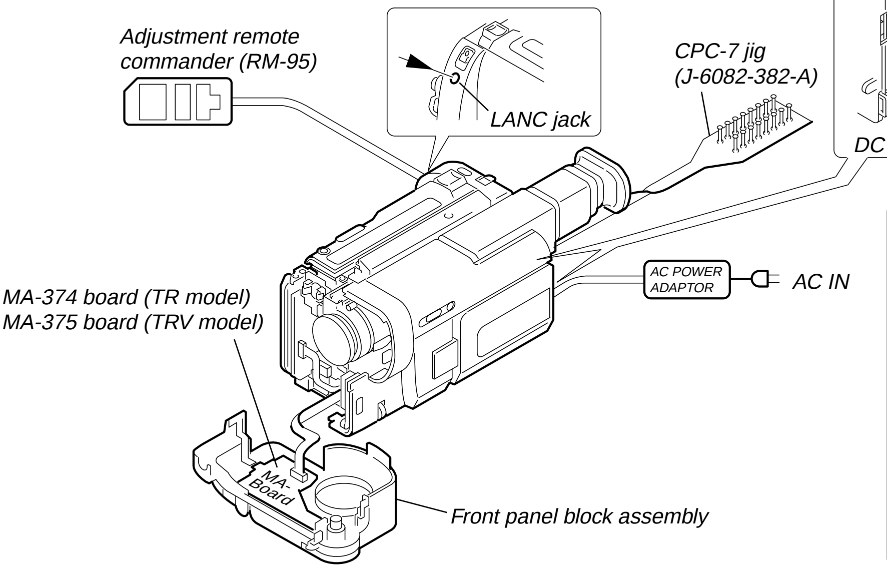
REMOVING THE VIDEO LIGHT, HALOGEN LAMP


(VIDEO LIGHT MODEL)
② Three claws
③ Video light
① Push in the dent inside hole with wire tip.
Ⓐ
④ Remove in the direction of the arrow Ⓐ.
⑤ Halogen lamp

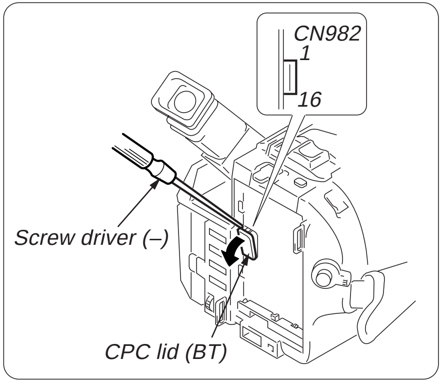
REMOVING THE MA-374/375 BOARD, MICROPHONE, FRONT PANEL (97) ASSEMBLY


③ Three tapping screws (B2 × 5)
④ MA-374 board (TR model)
MA-375 board (TRV model)
② Microphone (L) (2P) (Stereo model)
⑨ Front panel (97) assembly
⑧ Microphone (L) (Stereo model)
① Microphone (R) (2P)
SONY
⑤ Three tapping screws (B2 × 5)
⑦ Microphone (R)
⑥ Microphone grill (D) assembly

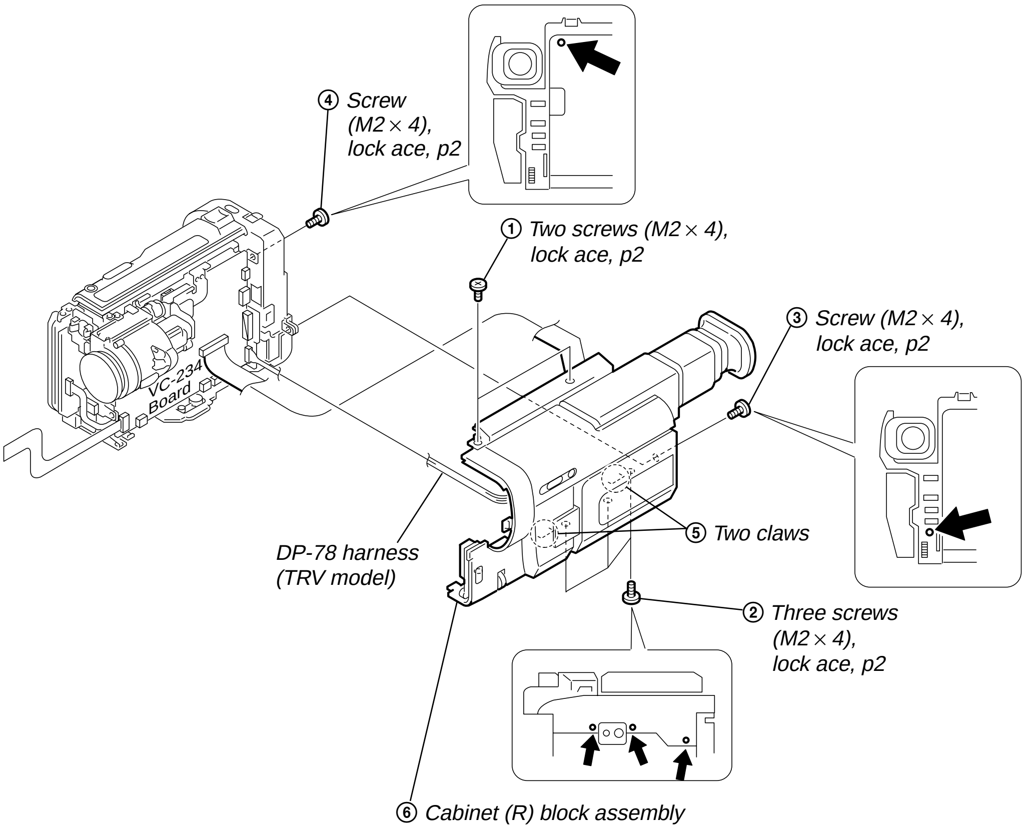
[MA-374/375 BOARD SERVICE POSITION]


Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
AC POWER ADAPTOR
AC IN
MA-374 board (TR model)
MA-375 board (TRV model)
MA-Board
Front panel block assembly

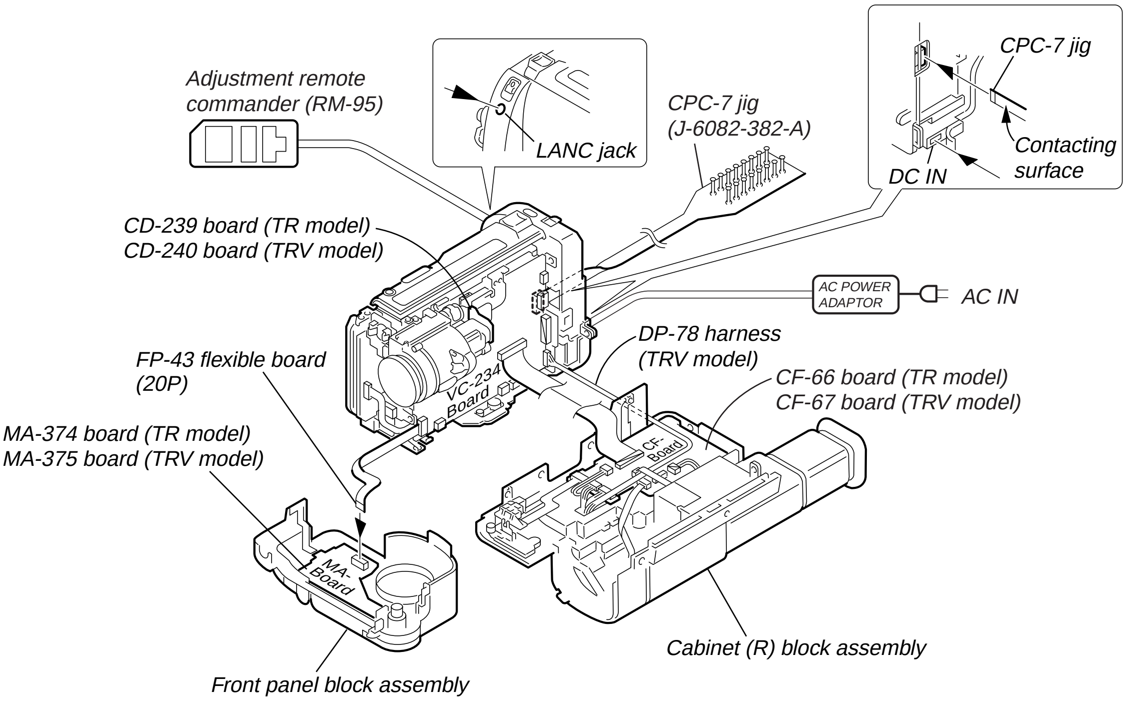
REMOVING THE CPC LID (BT)


CN982
1
16
Screw driver (–)
CPC lid (BT)

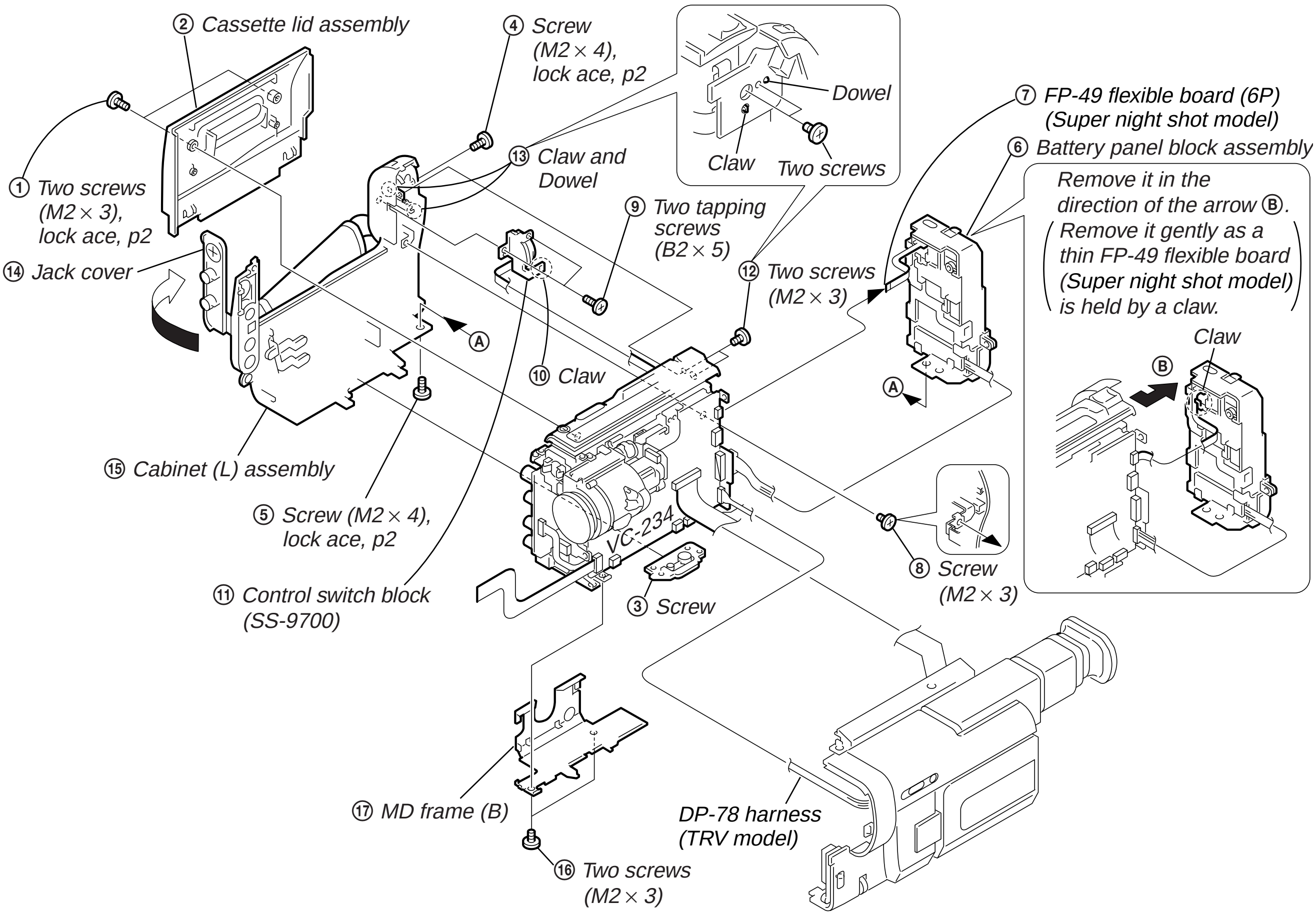
2-3. CABINET (R) BLOCK ASSEMBLY


④ Screw
(M2 × 4),
lock ace, p2
① Two screws (M2 × 4),
lock ace, p2
③ Screw (M2 × 4),
lock ace, p2
VC-234
Board
⑤ Two claws
DP-78 harness
(TRV model)
② Three screws
(M2 × 4),
lock ace, p2
⑥ Cabinet (R) block assembly

[MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]


Adjustment remote
commander (RM-95)
LANC jack
CPC-7 jig
(J-6082-382-A)
CPC-7 jig
Contacting
surface
DC IN
CD-239 board (TR model)
CD-240 board (TRV model)
AC POWER
ADAPTOR
AC IN
DP-78 harness
(TRV model)
FP-43 flexible board
(20P)
CF-66 board (TR model)
CF-67 board (TRV model)
VC-234
Board
CF-
Board
MA-374 board (TR model)
MA-375 board (TRV model)
MA-
Board
Cabinet (R) block assembly
Front panel block assembly

2-4. MECHANISM DECK-1



Remove it in the direction of the arrow Ⓑ.
Remove it gently as a thin FP-49 flexible board (Super night shot model) is held by a claw.

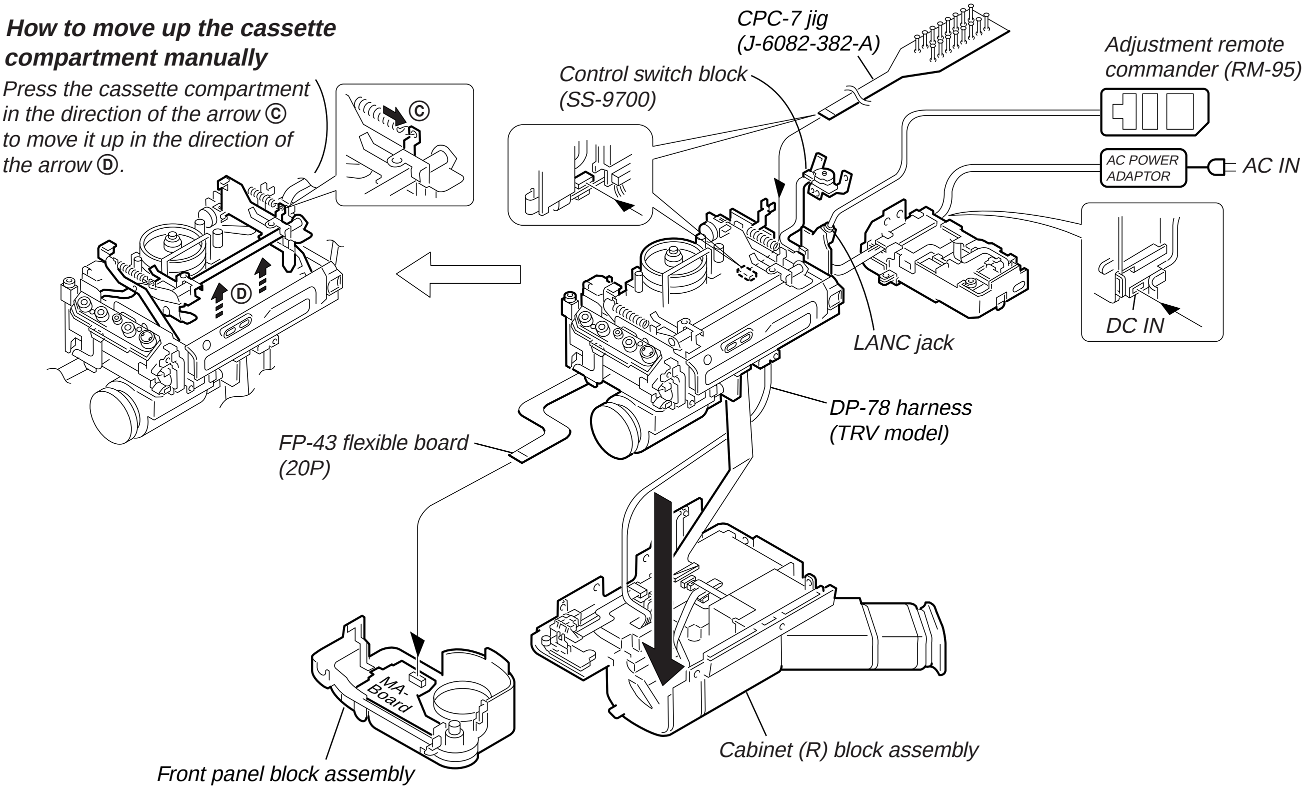
② Cassette lid assembly
④ Screw (M2 × 4), lock ace, p2
Dowel
Claw
Two screws
⑦ FP-49 flexible board (6P) (Super night shot model)
⑥ Battery panel block assembly
① Two screws (M2 × 3), lock ace, p2
⑬ Claw and Dowel
⑨ Two tapping screws (B2 × 5)
⑫ Two screws (M2 × 3)
⑭ Jack cover
Ⓐ
Claw
Ⓑ
⑩ Claw
Ⓐ
⑮ Cabinet (L) assembly
⑤ Screw (M2 × 4), lock ace, p2
VC-234
⑧ Screw (M2 × 3)
⑪ Control switch block (SS-9700)
③ Screw
⑰ MD frame (B)
DP-78 harness (TRV model)
⑯ Two screws (M2 × 3)

[MECHANISM DECK SERVICE POSITION-1]

Note: *Use the parts only which can be removed easily from outside of the mechanism deck.*

- **How to move up the cassette compartment manually**

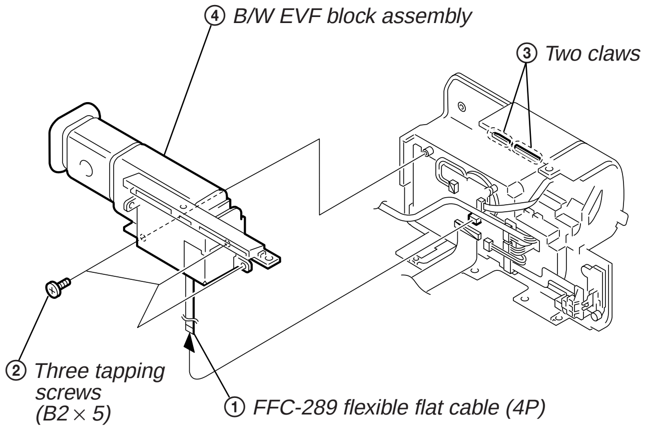
Press the cassette compartment in the direction of the arrow Ⓒ to move it up in the direction of the arrow Ⓓ.



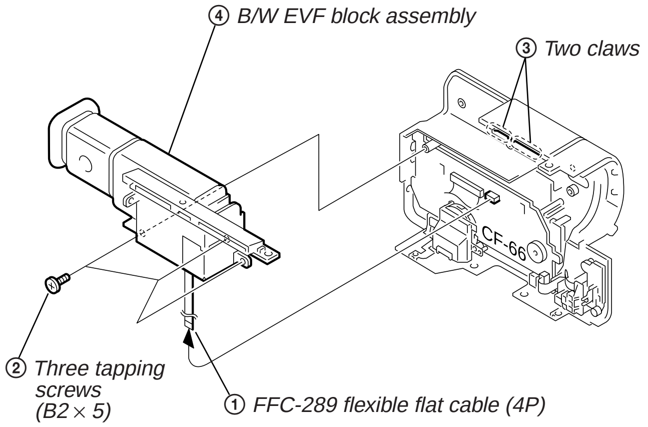
Ⓒ
Ⓓ
CPC-7 jig (J-6082-382-A)
Control switch block (SS-9700)
Adjustment remote commander (RM-95)
AC POWER ADAPTOR
AC IN
LANC jack
DC IN
DP-78 harness (TRV model)
FP-43 flexible board (20P)
MA-Board
Front panel block assembly
Cabinet (R) block assembly

2-5. EVF BLOCK ASSEMBLY

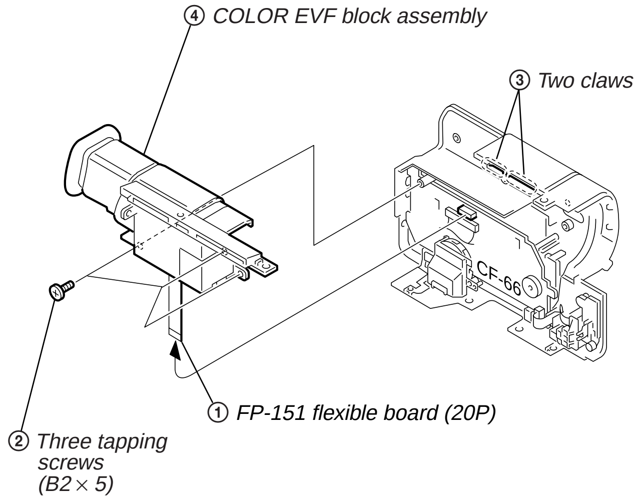
[TRV MODEL]


④ B/W EVF block assembly
③ Two claws
② Three tapping screws (B2 × 5)
① FFC-289 flexible flat cable (4P)

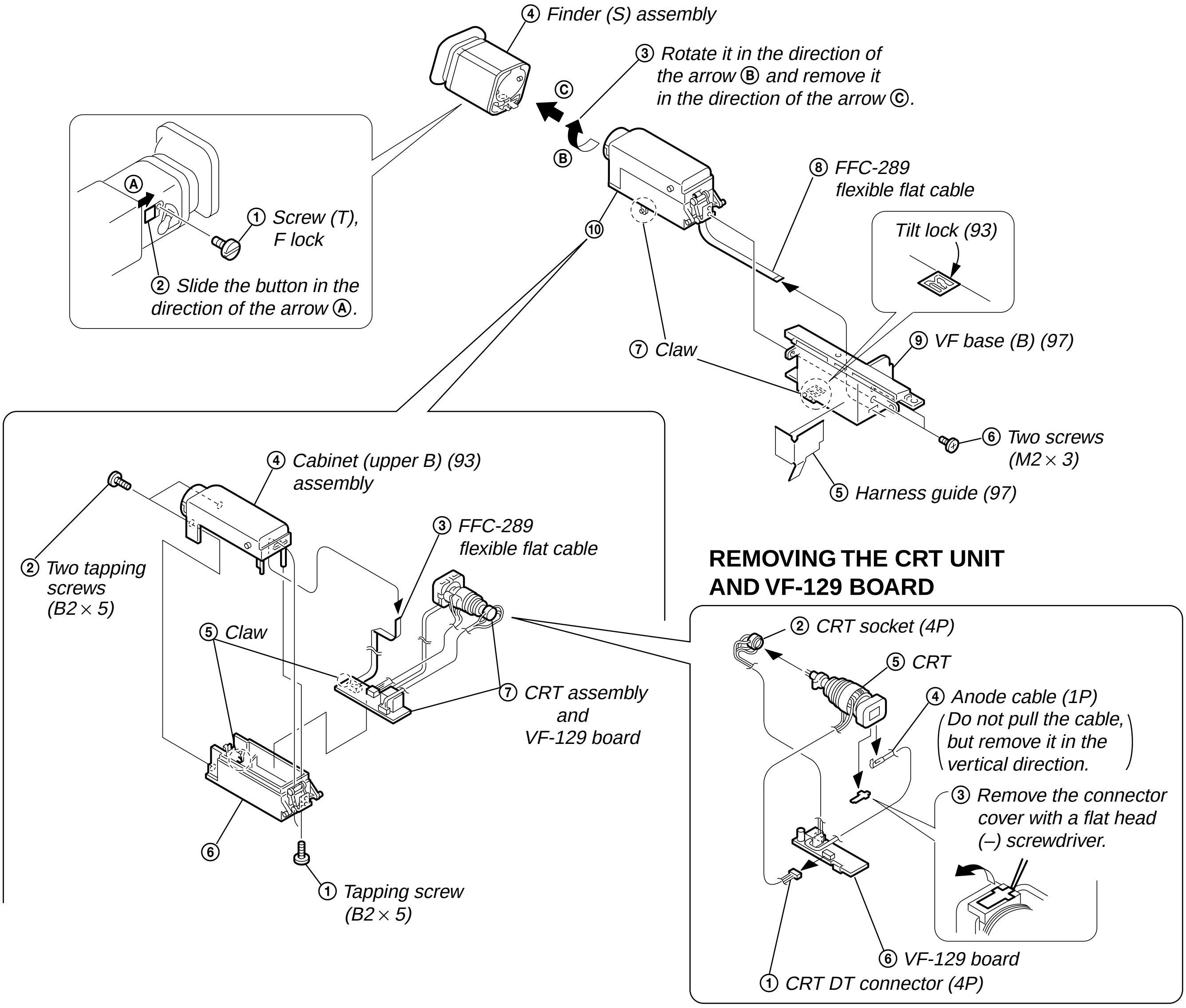
[TR317 MODEL]


④ B/W EVF block assembly
③ Two claws
CF-66
② Three tapping screws (B2 × 5)
① FFC-289 flexible flat cable (4P)

[TR517 MODEL]


④ COLOR EVF block assembly
③ Two claws
CF-66
① FP-151 flexible board (20P)
② Three tapping screws (B2 × 5)

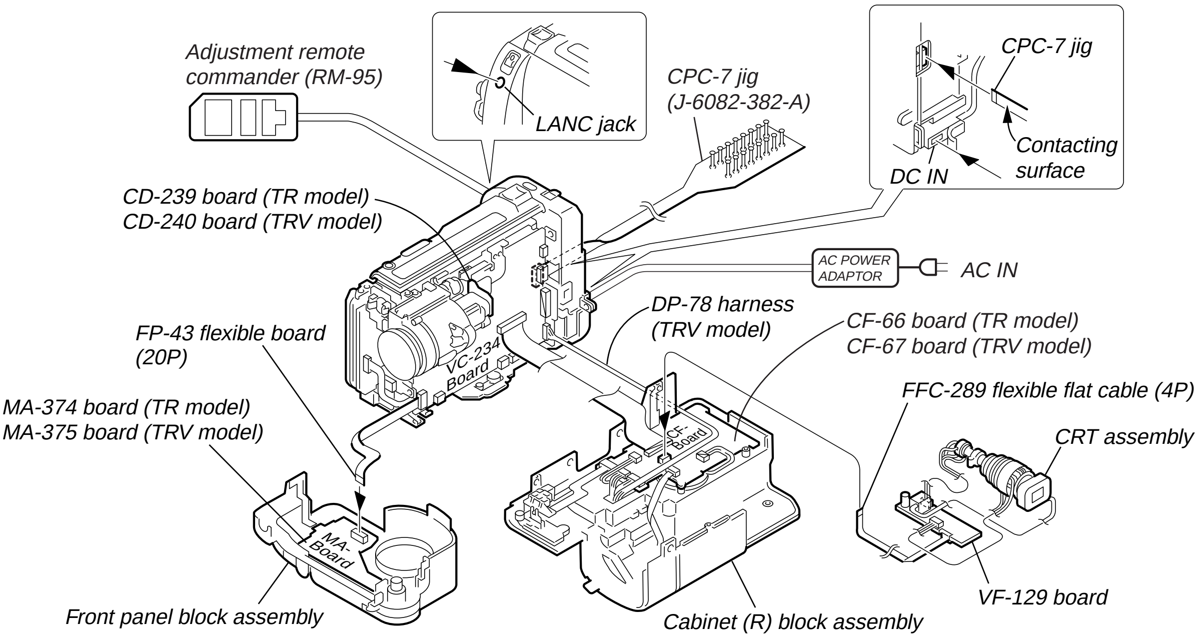
2-6. VF-129 BOARD (B/W EVF MODEL)


④ Finder (S) assembly
③ Rotate it in the direction of the arrow Ⓑ and remove it in the direction of the arrow Ⓒ.
Ⓒ
Ⓑ
Ⓐ
① Screw (T), F lock
② Slide the button in the direction of the arrow Ⓐ.
⑩
⑧ FFC-289 flexible flat cable
Tilt lock (93)
⑦ Claw
⑨ VF base (B) (97)
⑥ Two screws (M2 × 3)
⑤ Harness guide (97)
④ Cabinet (upper B) (93) assembly
③ FFC-289 flexible flat cable
② Two tapping screws (B2 × 5)
⑤ Claw
⑦ CRT assembly and VF-129 board
⑥
① Tapping screw (B2 × 5)

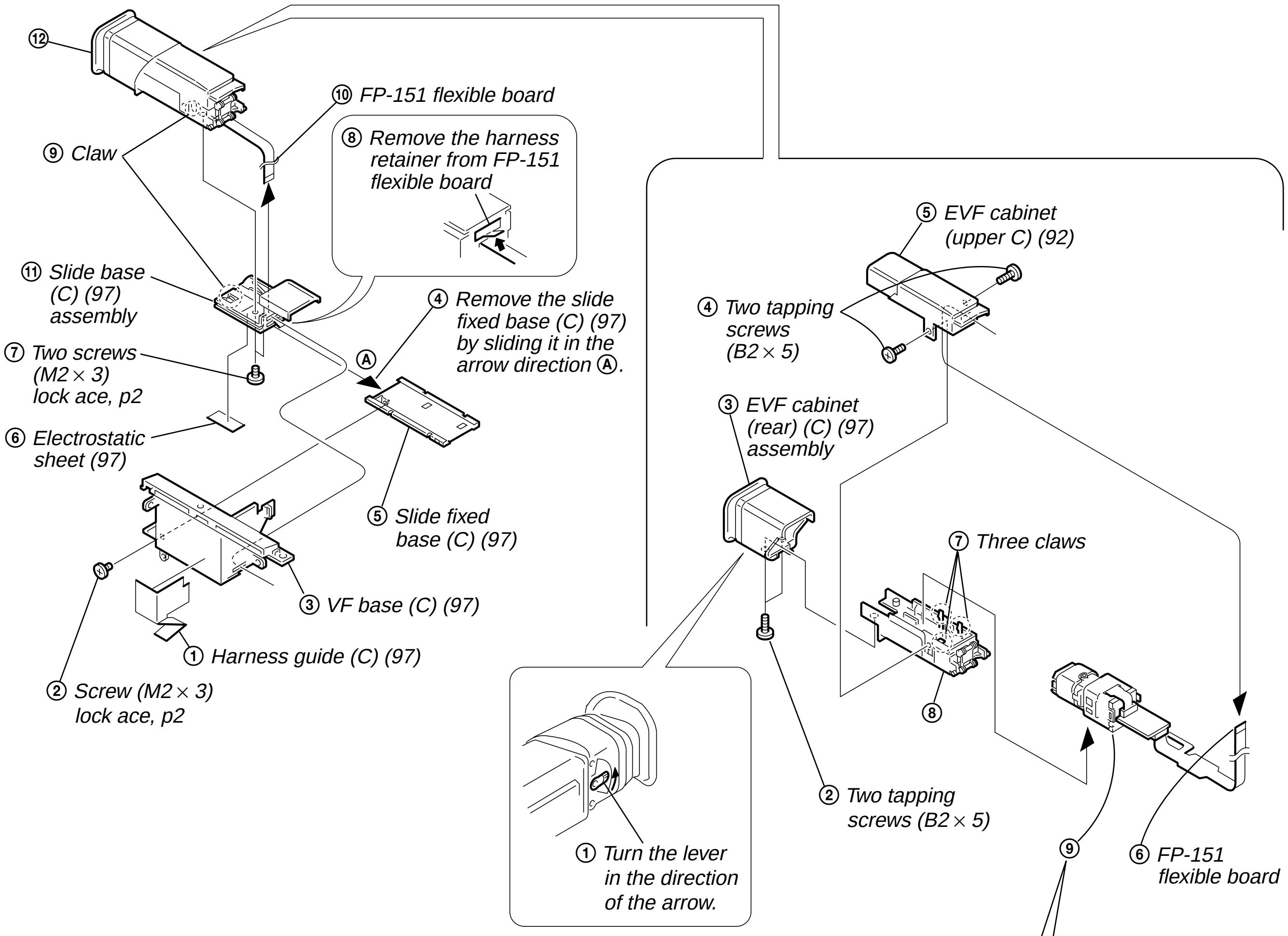
REMOVING THE CRT UNIT AND VF-129 BOARD

② CRT socket (4P)
⑤ CRT
④ Anode cable (1P) (Do not pull the cable, but remove it in the vertical direction.)
③ Remove the connector cover with a flat head (–) screwdriver.
⑥ VF-129 board
① CRT DT connector (4P)

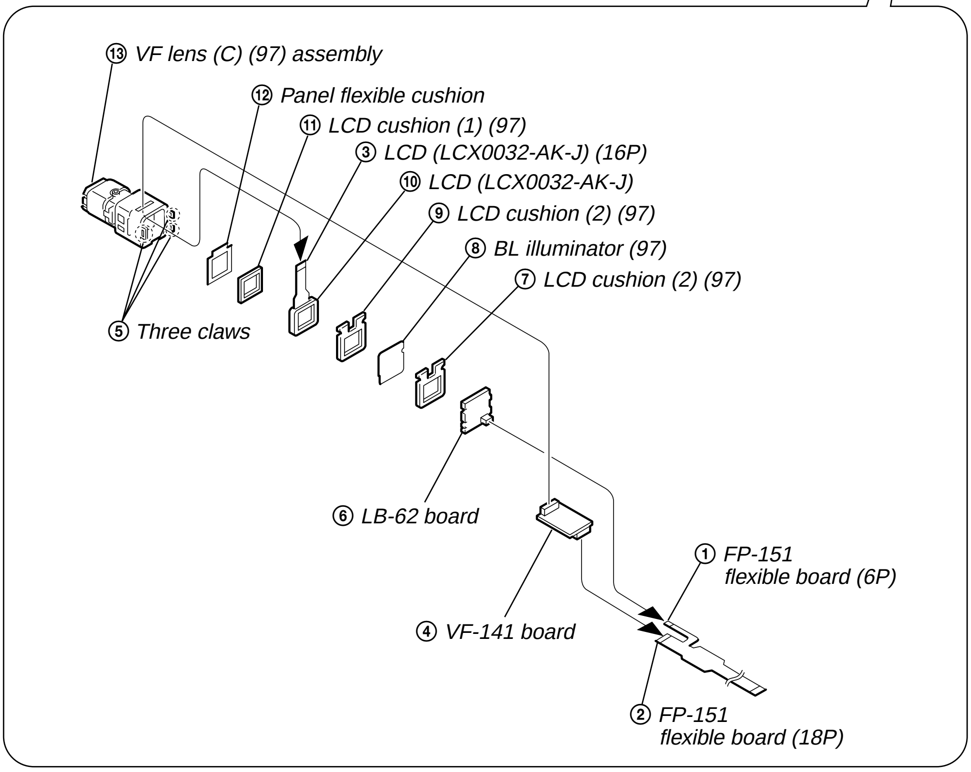
[VF-129, MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]


Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
CD-239 board (TR model)
CD-240 board (TRV model)
AC POWER ADAPTOR
AC IN
DP-78 harness (TRV model)
FP-43 flexible board (20P)
CF-66 board (TR model)
CF-67 board (TRV model)
VC-234 Board
FFC-289 flexible flat cable (4P)
CF-Board
CRT assembly
MA-374 board (TR model)
MA-375 board (TRV model)
MA-Board
VF-129 board
Front panel block assembly
Cabinet (R) block assembly

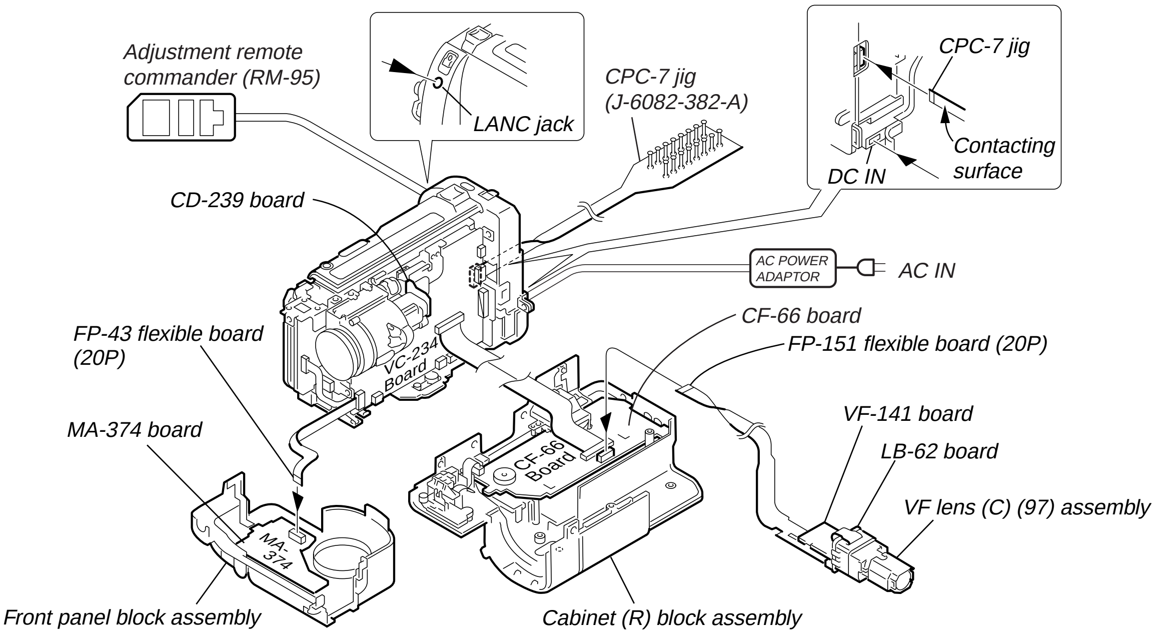
2-7. VF-141, LB-62 BOARDS (COLOR EVF MODEL)


⑫
⑩ FP-151 flexible board
⑧ Remove the harness retainer from FP-151 flexible board
⑨ Claw
⑪ Slide base (C) (97) assembly
④ Remove the slide fixed base (C) (97) by sliding it in the arrow direction Ⓐ.
Ⓐ
⑦ Two screws (M2 × 3) lock ace, p2
⑥ Electrostatic sheet (97)
⑤ Slide fixed base (C) (97)
③ VF base (C) (97)
① Harness guide (C) (97)
② Screw (M2 × 3) lock ace, p2
⑤ EVF cabinet (upper C) (92)
④ Two tapping screws (B2 × 5)
③ EVF cabinet (rear) (C) (97) assembly
⑦ Three claws
⑧
① Turn the lever in the direction of the arrow.
② Two tapping screws (B2 × 5)
⑨
⑥ FP-151 flexible board

REMOVING THE VF-141, LB-62 BOARDS

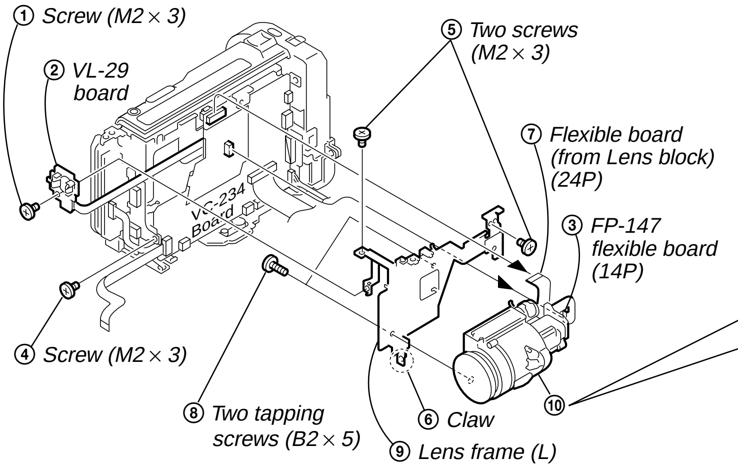

⑬ VF lens (C) (97) assembly
⑫ Panel flexible cushion
⑪ LCD cushion (1) (97)
③ LCD (LCX0032-AK-J) (16P)
⑩ LCD (LCX0032-AK-J)
⑨ LCD cushion (2) (97)
⑧ BL illuminator (97)
⑦ LCD cushion (2) (97)
⑤ Three claws
⑥ LB-62 board
① FP-151 flexible board (6P)
④ VF-141 board
② FP-151 flexible board (18P)

[VF-141, LB-62, MA-374, CF-66, CD-239 BOARDS SERVICE POSITION]

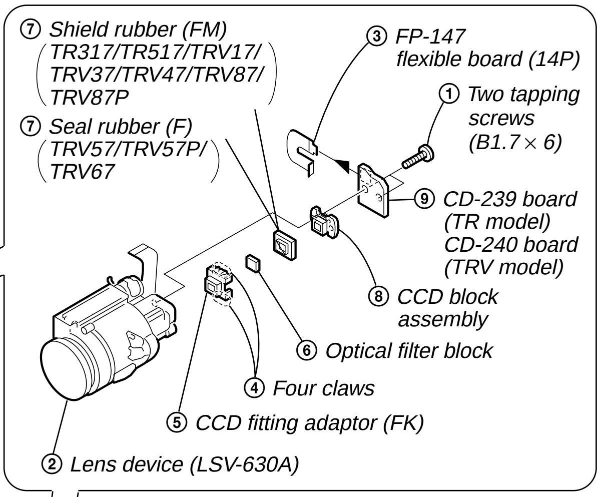

Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
CD-239 board
AC POWER ADAPTOR
AC IN
CF-66 board
FP-151 flexible board (20P)
FP-43 flexible board (20P)
VC-234 Board
MA-374 board
CF-66 Board
VF-141 board
LB-62 board
VF lens (C) (97) assembly
MA-374
Front panel block assembly
Cabinet (R) block assembly

2-8. LENS DEVICE, CD-239/240 BOARD

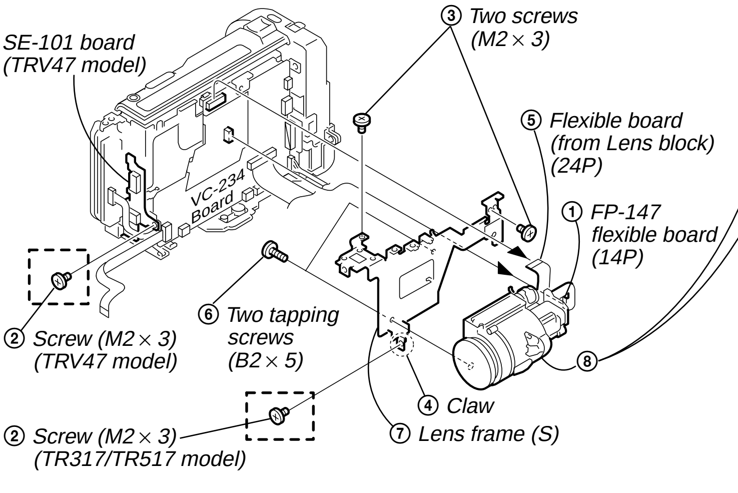
[VIDEO LIGHT MODEL]


① Screw (M2 × 3)
② VL-29 board
⑤ Two screws (M2 × 3)
⑦ Flexible board (from Lens block) (24P)
③ FP-147 flexible board (14P)
VC-234 Board
④ Screw (M2 × 3)
⑧ Two tapping screws (B2 × 5)
⑥ Claw
⑩
⑨ Lens frame (L)

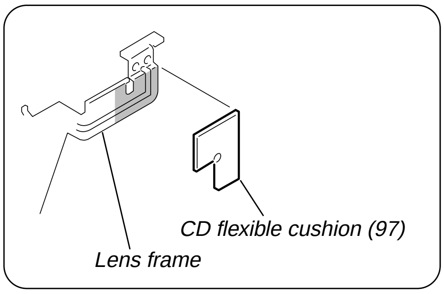
REMOVING THE LENS DEVICE, CD-239/240 BOARD


⑦ Shield rubber (FM) (TR317/TR517/TRV17/ TRV37/TRV47/TRV87/ TRV87P)
⑦ Seal rubber (F) (TRV57/TRV57P/ TRV67)
③ FP-147 flexible board (14P)
① Two tapping screws (B1.7 × 6)
⑨ CD-239 board (TR model) CD-240 board (TRV model)
⑧ CCD block assembly
⑥ Optical filter block
④ Four claws
⑤ CCD fitting adaptor (FK)
② Lens device (LSV-630A)

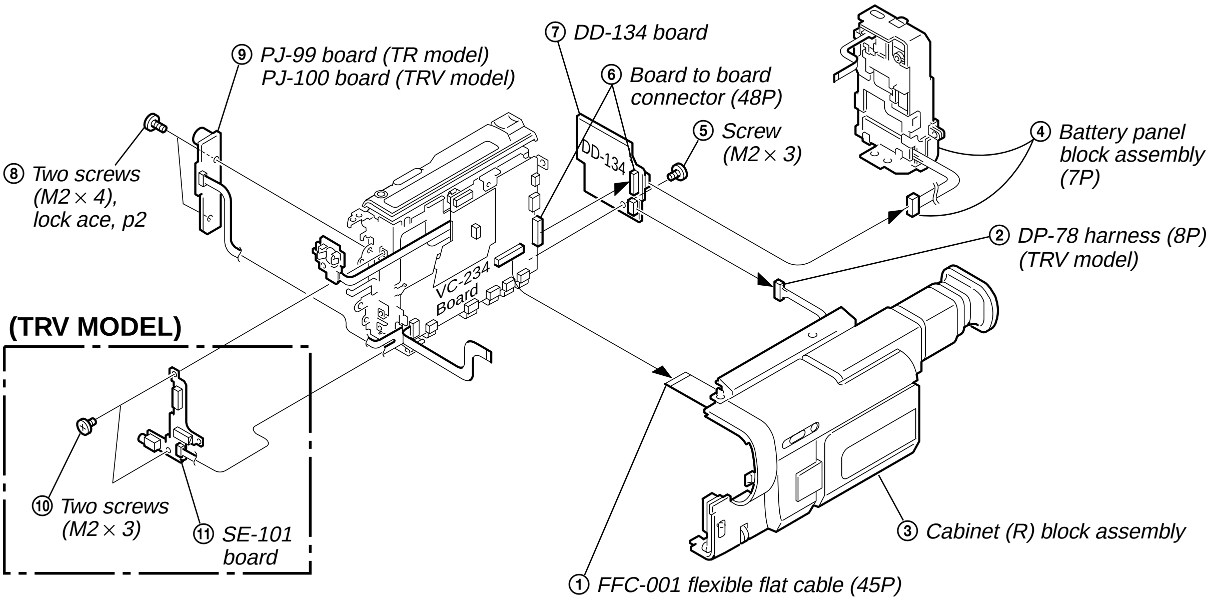
[NO VIDEO LIGHT MODEL]


SE-101 board (TRV47 model)
③ Two screws (M2 × 3)
⑤ Flexible board (from Lens block) (24P)
① FP-147 flexible board (14P)
VC-234 Board
⑥ Two tapping screws (B2 × 5)
② Screw (M2 × 3) (TRV47 model)
⑧
④ Claw
⑦ Lens frame (S)
② Screw (M2 × 3) (TR317/TR517 model)

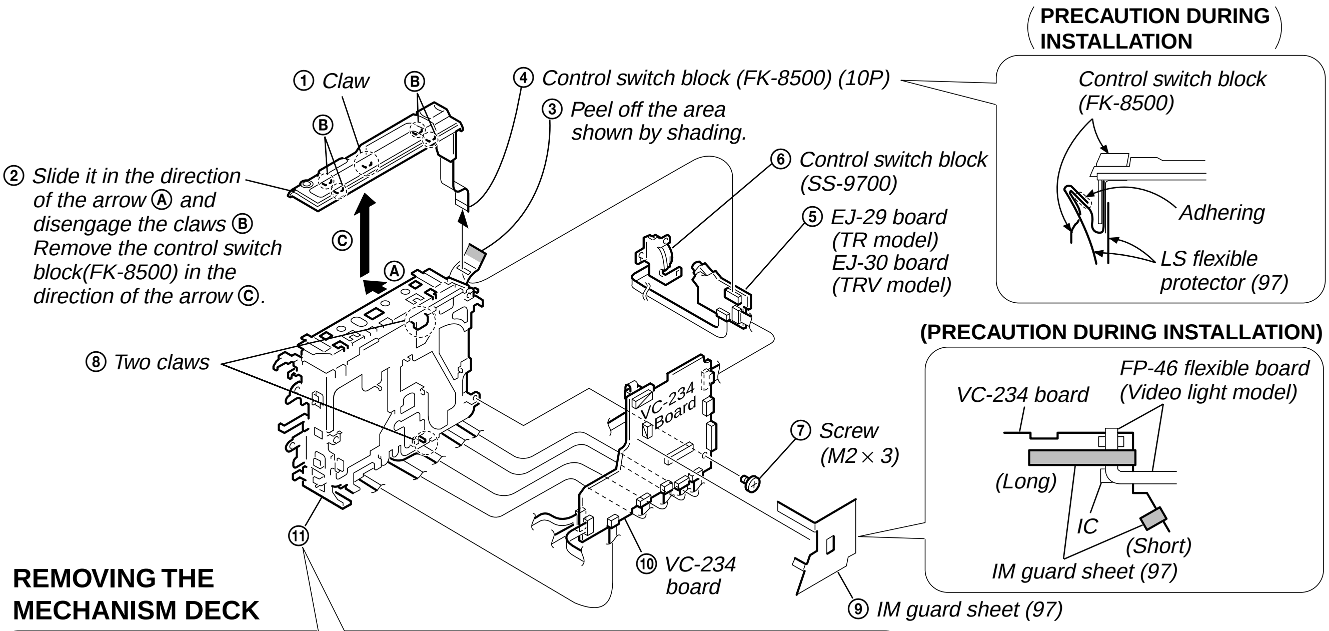
(PRECAUTION DURING INSTALLATION)


CD flexible cushion (97)
Lens frame

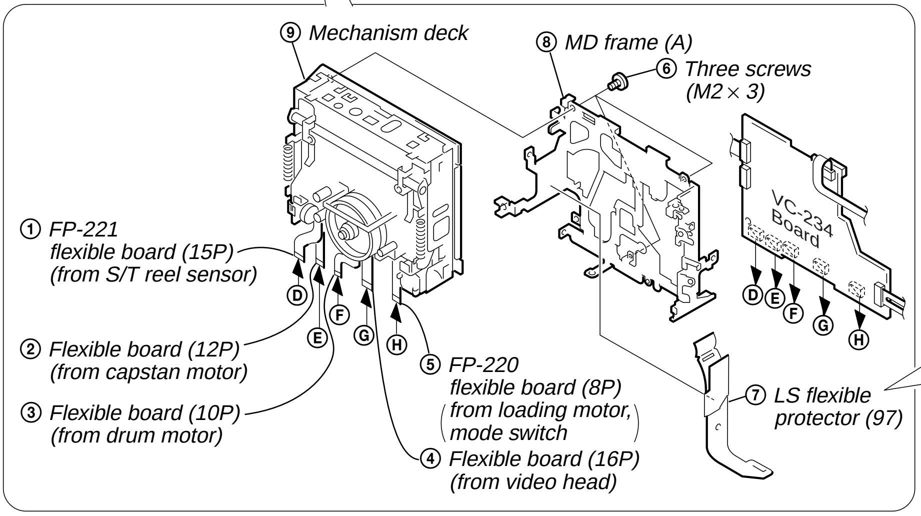
2-9. DD-134, SE-101 BOARDS


⑦ DD-134 board
⑨ PJ-99 board (TR model)
PJ-100 board (TRV model)
⑥ Board to board connector (48P)
⑤ Screw (M2 × 3)
④ Battery panel block assembly (7P)
⑧ Two screws (M2 × 4), lock ace, p2
DD-134
VC-234 Board
② DP-78 harness (8P) (TRV model)
(TRV MODEL)
⑩ Two screws (M2 × 3)
⑪ SE-101 board
③ Cabinet (R) block assembly
① FFC-001 flexible flat cable (45P)

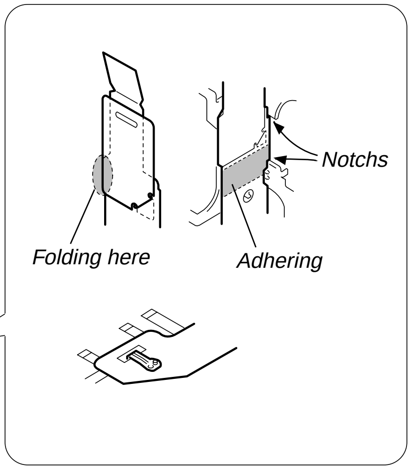
2-10. VC-234, EJ-29/30 BOARDS, MECHANISM DECK-2


(PRECAUTION DURING INSTALLATION)
① Claw
Ⓑ
④ Control switch block (FK-8500) (10P)
③ Peel off the area shown by shading.
Control switch block (FK-8500)
Ⓑ
② Slide it in the direction of the arrow Ⓐ and disengage the claws Ⓑ Remove the control switch block(FK-8500) in the direction of the arrow Ⓒ.
Ⓒ
Ⓐ
⑥ Control switch block (SS-9700)
⑤ EJ-29 board (TR model)
EJ-30 board (TRV model)
Adhering
LS flexible protector (97)
(PRECAUTION DURING INSTALLATION)
⑧ Two claws
VC-234 board
FP-46 flexible board (Video light model)
VC-234 Board
⑦ Screw (M2 × 3)
(Long)
IC
(Short)
IM guard sheet (97)
⑪
⑩ VC-234 board
⑨ IM guard sheet (97)

REMOVING THE MECHANISM DECK

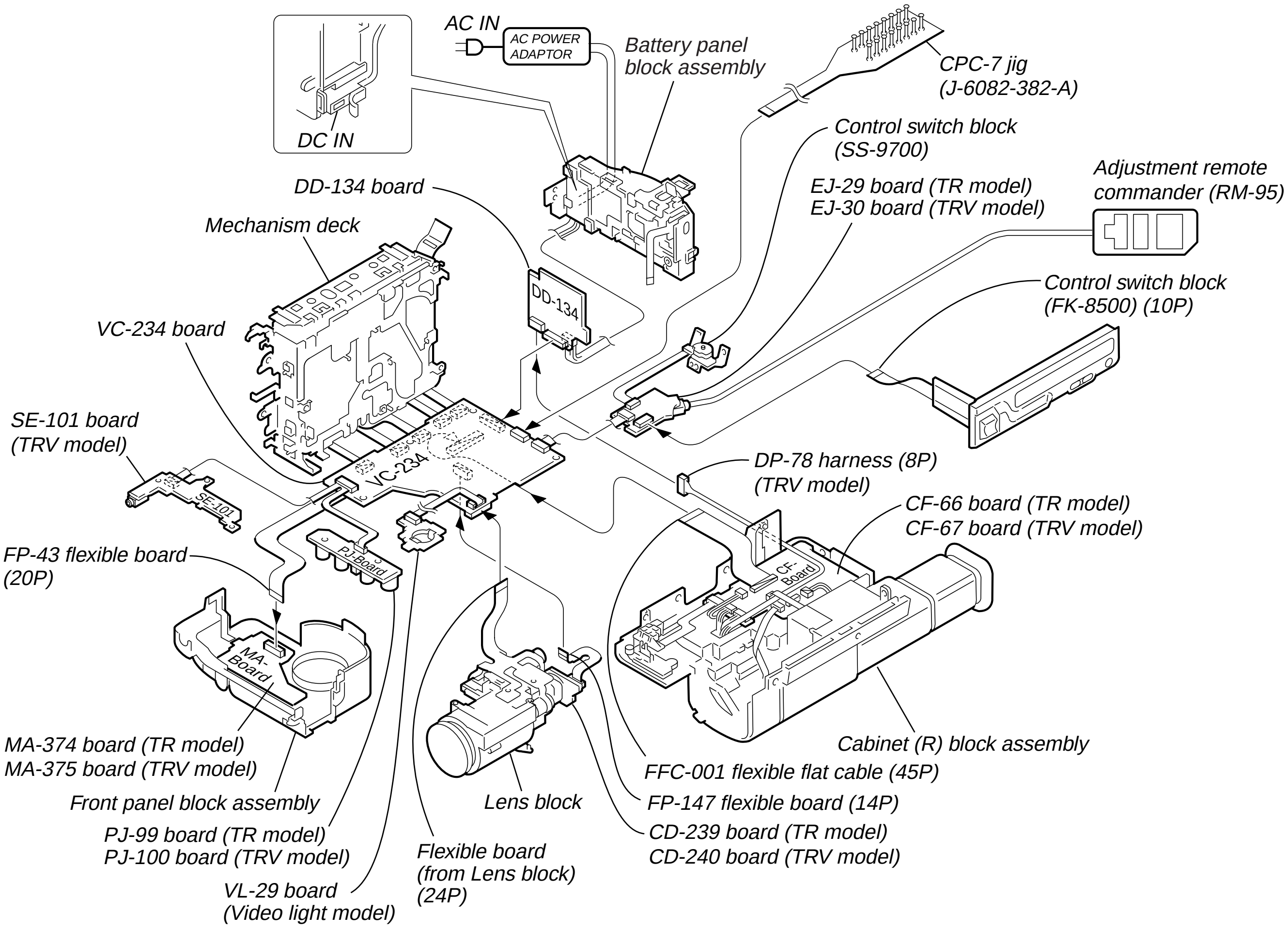

⑨ Mechanism deck
⑧ MD frame (A)
⑥ Three screws (M2 × 3)
VC-234 Board
① FP-221 flexible board (15P) (from S/T reel sensor)
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ
Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ
② Flexible board (12P) (from capstan motor)
⑤ FP-220 flexible board (8P) (from loading motor, mode switch)
③ Flexible board (10P) (from drum motor)
④ Flexible board (16P) (from video head)
⑦ LS flexible protector (97)

(PRECAUTION DURING INSTALLATION)


Notchs
Folding here
Adhering

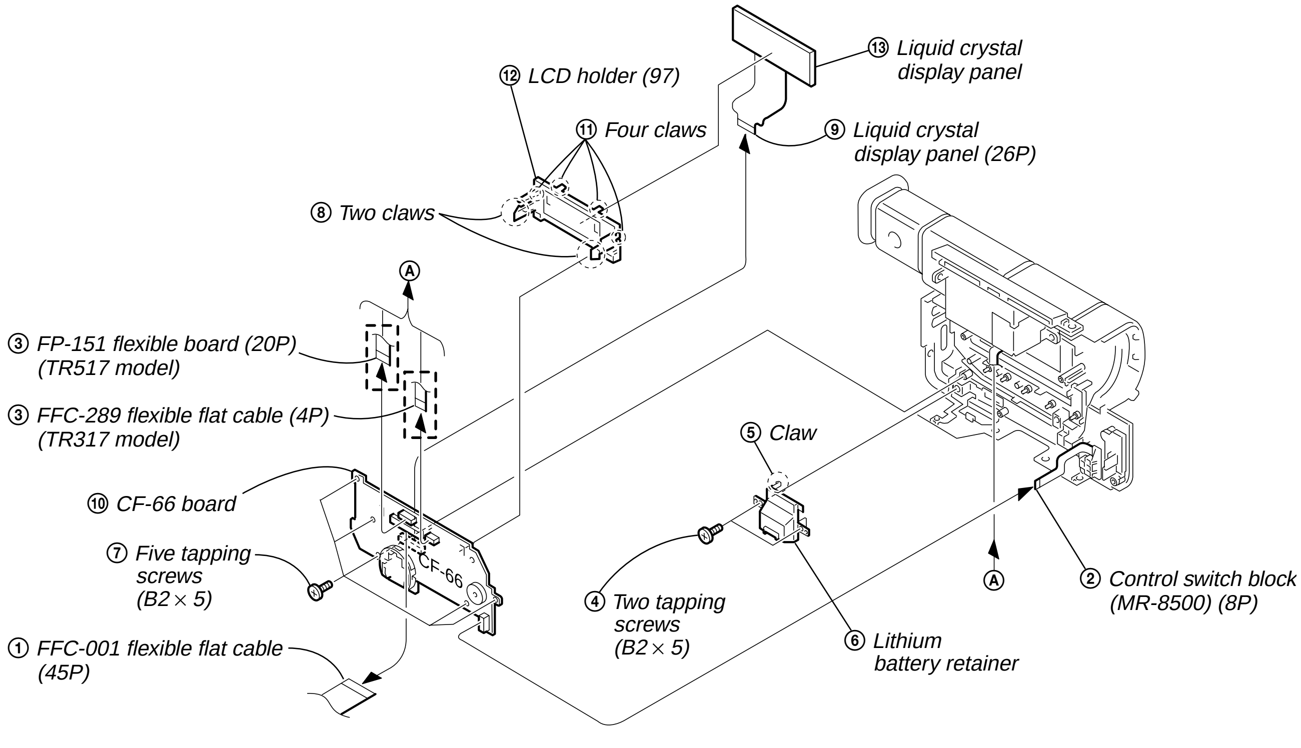
[CONNECTION DIAGRAM FOR SERVICE POSITION (Mainly for voltage measurement and check)]

(MA-374/375, CF-66/67, CD-239/240, VL-29, PJ-99/100, SE-101, EJ-29/30, DD-134, VC-234 BOARDS, MECHANISM DECK-2)



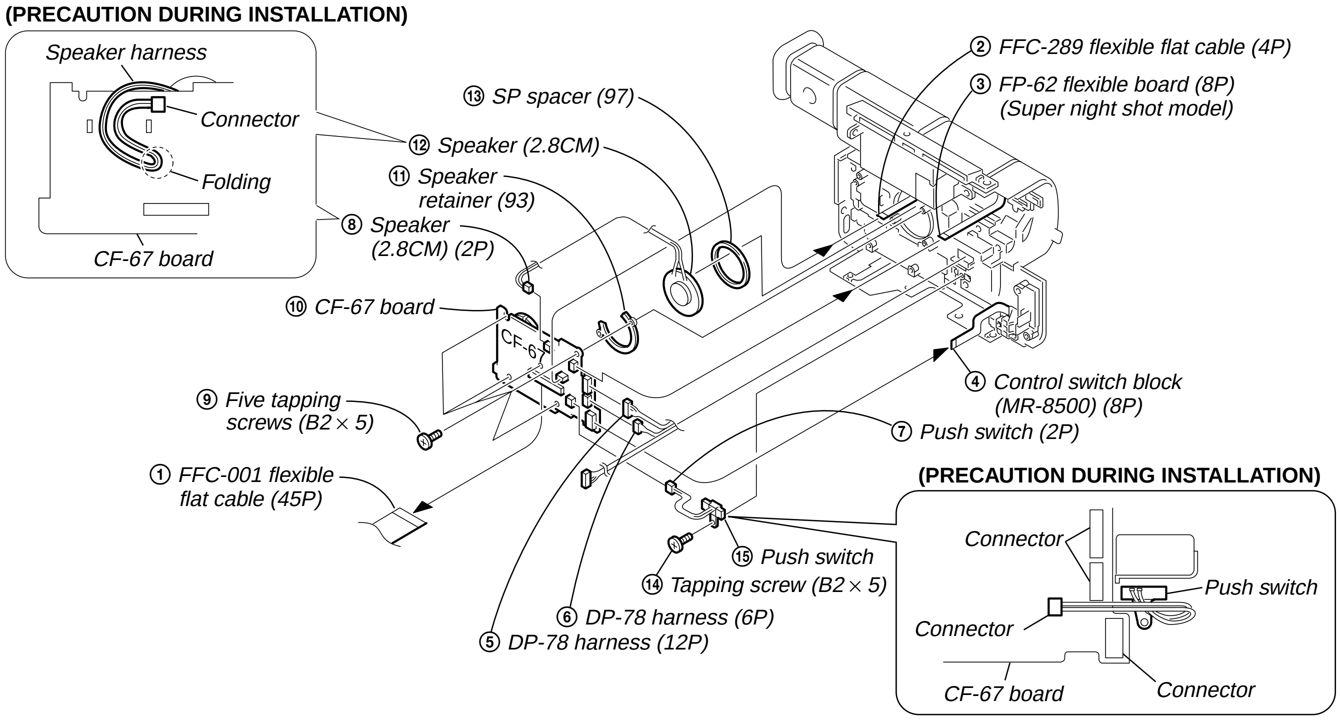
AC IN
AC POWER ADAPTOR
Battery panel block assembly
CPC-7 jig (J-6082-382-A)
DC IN
Control switch block (SS-9700)
DD-134 board
EJ-29 board (TR model)
EJ-30 board (TRV model)
Adjustment remote commander (RM-95)
Mechanism deck
DD-134
Control switch block (FK-8500) (10P)
VC-234 board
SE-101 board (TRV model)
VC-234
DP-78 harness (8P) (TRV model)
SE-101
CF-66 board (TR model)
CF-67 board (TRV model)
FP-43 flexible board (20P)
PJ-Board
CF-Board
MA-Board
MA-374 board (TR model)
MA-375 board (TRV model)
Cabinet (R) block assembly
FFC-001 flexible flat cable (45P)
Front panel block assembly
Lens block
FP-147 flexible board (14P)
PJ-99 board (TR model)
PJ-100 board (TRV model)
CD-239 board (TR model)
CD-240 board (TRV model)
Flexible board (from Lens block) (24P)
VL-29 board (Video light model)

2-11. CF-66 BOARD, LIQUID CRYSTAL DISPLAY PANEL (TR MODEL)

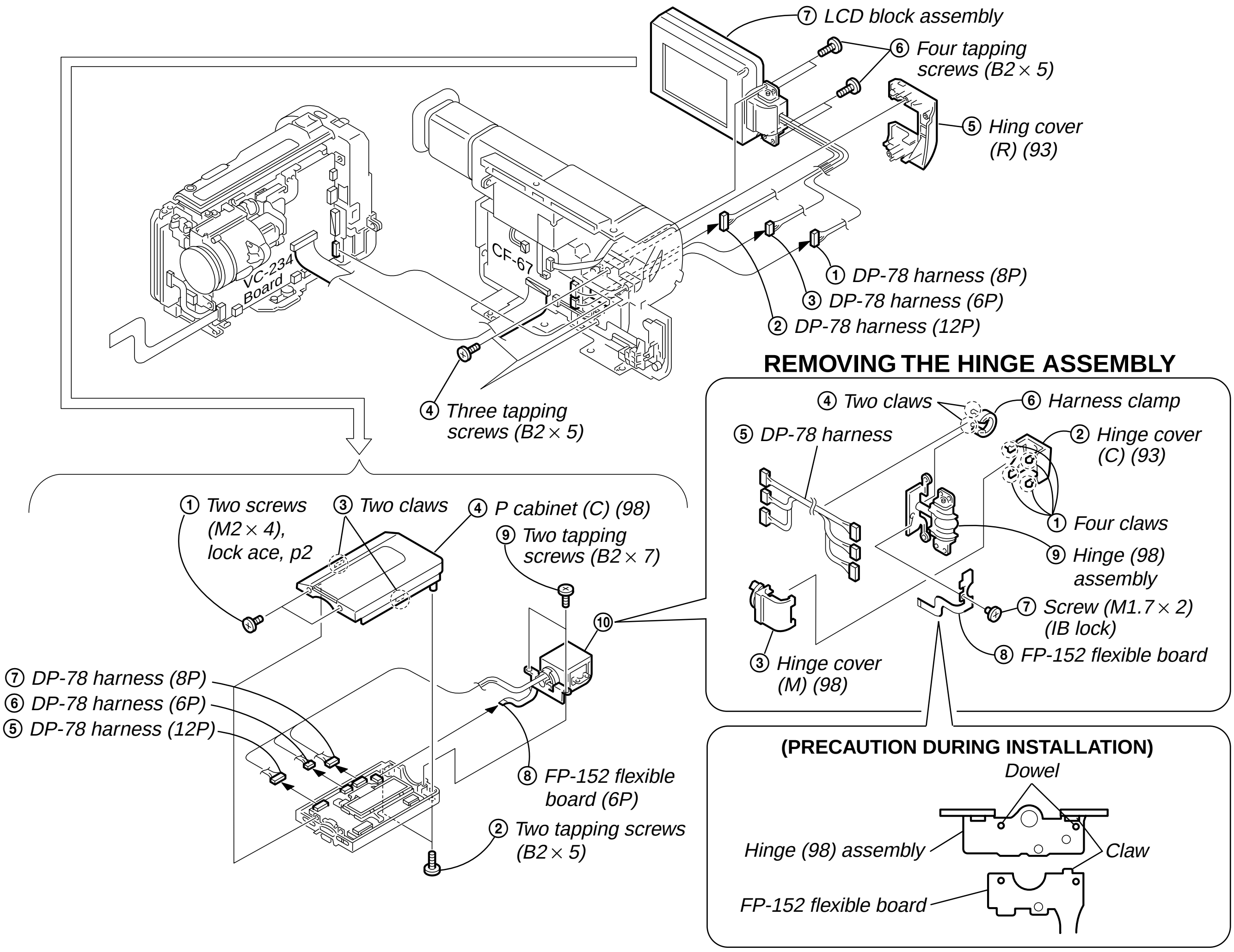


⑬ Liquid crystal display panel
⑫ LCD holder (97)
⑪ Four claws
⑨ Liquid crystal display panel (26P)
⑧ Two claws
A
③ FP-151 flexible board (20P) (TR517 model)
③ FFC-289 flexible flat cable (4P) (TR317 model)
⑤ Claw
⑩ CF-66 board
CF-66
⑦ Five tapping screws (B2 × 5)
A
② Control switch block (MR-8500) (8P)
④ Two tapping screws (B2 × 5)
⑥ Lithium battery retainer
① FFC-001 flexible flat cable (45P)

2-12. CF-67 BOARD, SPEAKER, PUSH SWITCH (TRV MODEL)


(PRECAUTION DURING INSTALLATION)
Speaker harness
Connector
Folding
CF-67 board
⑬ SP spacer (97)
⑫ Speaker (2.8CM)
⑪ Speaker retainer (93)
⑧ Speaker (2.8CM) (2P)
⑩ CF-67 board
CF-67
⑨ Five tapping screws (B2 × 5)
① FFC-001 flexible flat cable (45P)
② FFC-289 flexible flat cable (4P)
③ FP-62 flexible board (8P) (Super night shot model)
④ Control switch block (MR-8500) (8P)
⑦ Push switch (2P)
⑮ Push switch
⑭ Tapping screw (B2 × 5)
⑥ DP-78 harness (6P)
⑤ DP-78 harness (12P)
(PRECAUTION DURING INSTALLATION)
Connector
Push switch
Connector
CF-67 board
Connector

2-13. LCD BLOCK ASSEMBLY, HINGE ASSEMBLY (TRV MODEL)

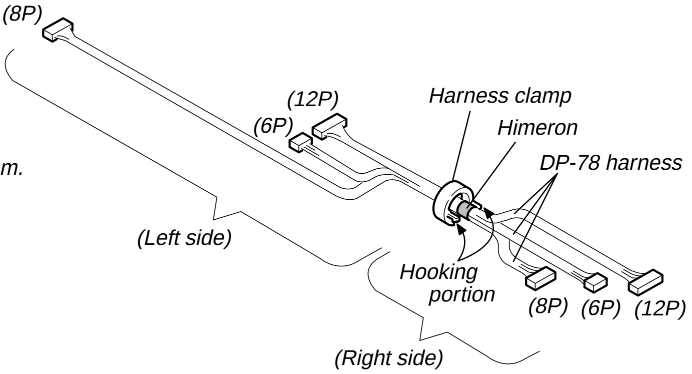

⑦ LCD block assembly
⑥ Four tapping screws (B2 × 5)
⑤ Hing cover (R) (93)
VC-234 Board
CF-67
① DP-78 harness (8P)
③ DP-78 harness (6P)
② DP-78 harness (12P)
④ Three tapping screws (B2 × 5)
① Two screws (M2 × 4), lock ace, p2
③ Two claws
④ P cabinet (C) (98)
⑨ Two tapping screws (B2 × 7)
⑩
⑦ DP-78 harness (8P)
⑥ DP-78 harness (6P)
⑤ DP-78 harness (12P)
⑧ FP-152 flexible board (6P)
② Two tapping screws (B2 × 5)
REMOVING THE HINGE ASSEMBLY
④ Two claws
⑥ Harness clamp
⑤ DP-78 harness
② Hinge cover (C) (93)
① Four claws
⑨ Hinge (98) assembly
⑦ Screw (M1.7 × 2) (IB lock)
⑧ FP-152 flexible board
③ Hinge cover (M) (98)
(PRECAUTION DURING INSTALLATION)
Dowel
Hinge (98) assembly
Claw
FP-152 flexible board

2-14. HARNESS PROCESSING OF THE HINGE ASSEMBLY (TRV MODEL)

[ASSEMBLING THE HARNESS CLAMP]

Attach the harness clamp to the DP-78 harness.

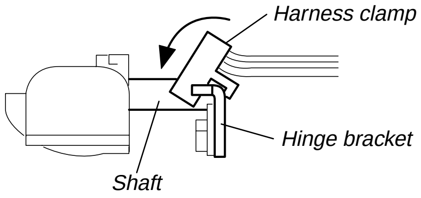
- *Place a longer harness to the left side.*
- *Place the shortest harness (8P) in the right side to the bottom.*
- *Place the hooking portion of the harness clamp to the right side.*
- *Place the harness clamp in the left of the tie band himeron that ties the three wires.*
- *Insert the DP-78 harness in the internal groove of the harness clamp.*


(8P)
(12P)
(6P)
Harness clamp
Himeron
DP-78 harness
(Left side)
Hooking portion
(8P)
(6P)
(12P)
(Right side)

[INSTALLING THE HARNESS CLAMP]

Hook the two claws of the harness clamp on the hinge bracket.
Then attach it to the shaft of the hinge assembly.

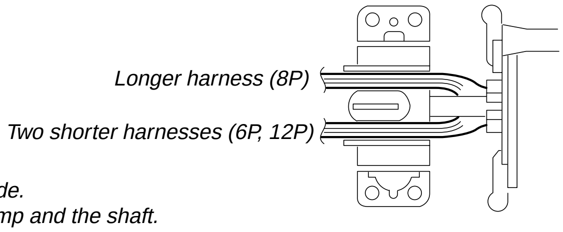
Note:
- *The harness must not be pinched.*
- *The sheet of the FP-152 flexible board must not be peeled over.*


Harness clamp
Hinge bracket
Shaft

[HARNESS PROCESSING]

Fix the harness using the harness guide of the hinge assembly.

- *While holding the harness clamp, turn the hinge upside down.*
- *While being careful not to twist the harness, insert the longer harness (8P) into the shallow groove and insert the other harnesses (6P, 12P) to the deeper groove.*

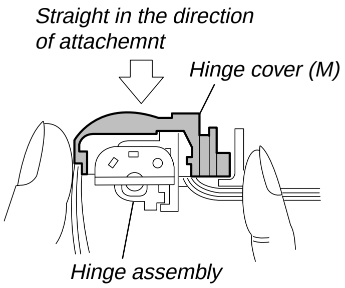

Longer harness (8P)
Two shorter harnesses (6P, 12P)

Note:
- *Be sure that the harnesses do not climb over the three ribs of the guide.*
- *Be sure that the harnesses are not pinched between the harness clamp and the shaft.*

[ATTACHING THE HINGE COVER (M)]

Attach the hinge cover (M) to the hinge assembly.

- *Hold the harness so that the harness must not come out from the groove.*
- *Be careful so that the hinge cover (M) must not contact with the switch of the FP-152 flexible board.*

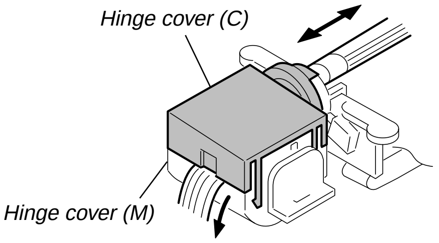

Straight in the direction of attachemnt
Hinge cover (M)
Hinge assembly

[ATTACHING THE HINGE COVER (C)]

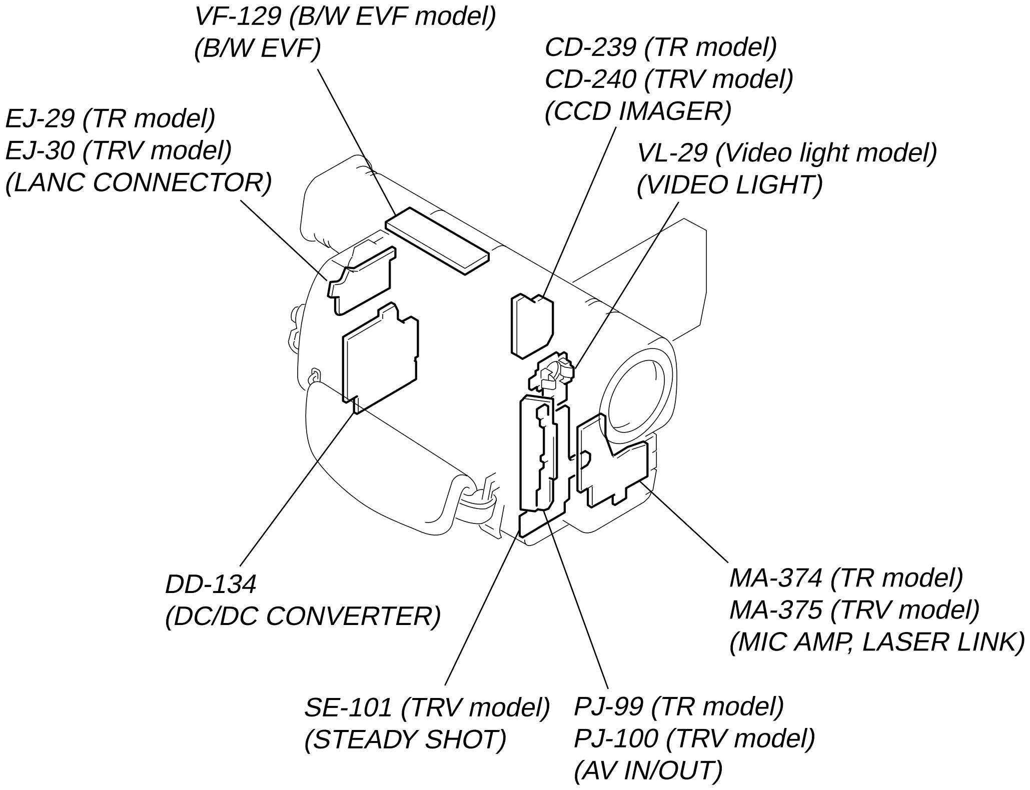
Attach the hinge cover (C) to the hinge cover (M).

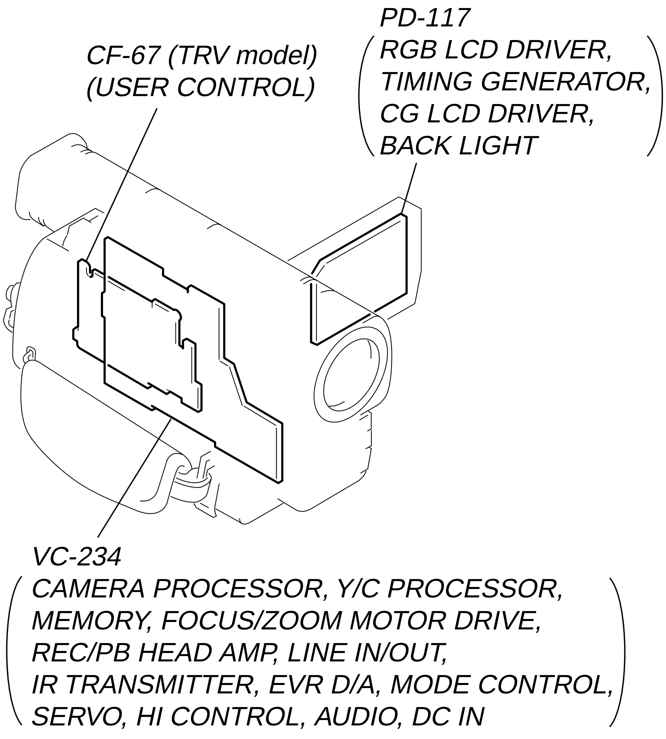
- *While holding the hinge cover (M) so as not to be dropped, turn the hinge cover (C) upside down.*
- *Route the harness inside the cutout of the hinge cover (M).*
- *Attach the hinge cover (C) straight. (Claw hooks at the four positions.)*
- *Make an attempt to move the harness gently at the entrance/exit of the hinge assembly to make sure that the harness can move.*

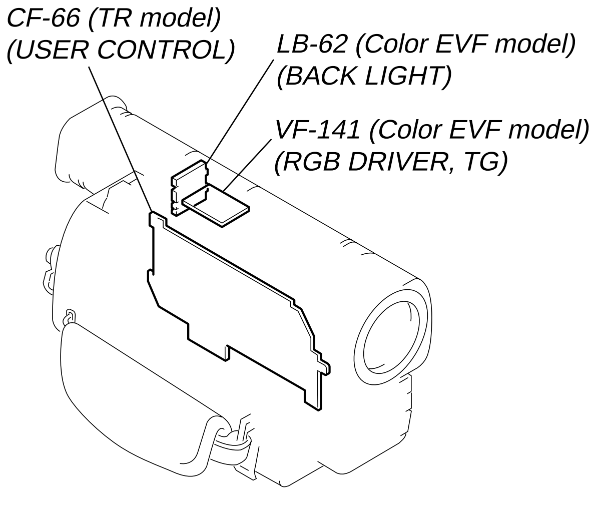
Note:
- *Be sure that the harness is not pinched by the hinge cover.*
- *Be sure that the harness can move at the entrance/exit of the hinge assembly.*


Hinge cover (C)
Hinge cover (M)

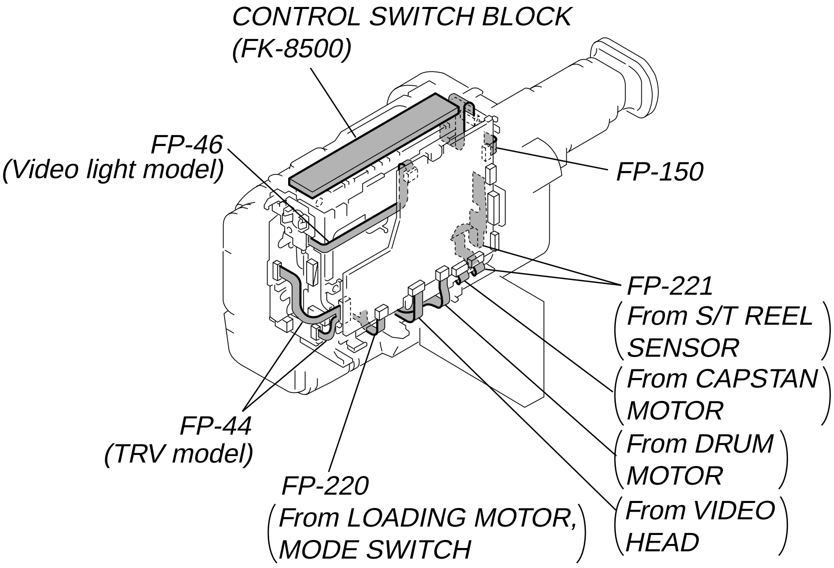
2-15. CIRCUIT BOARDS LOCATION

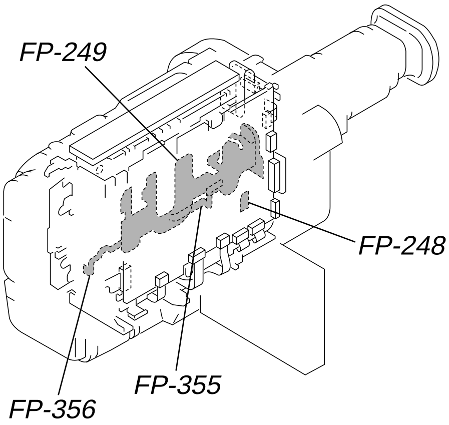

VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

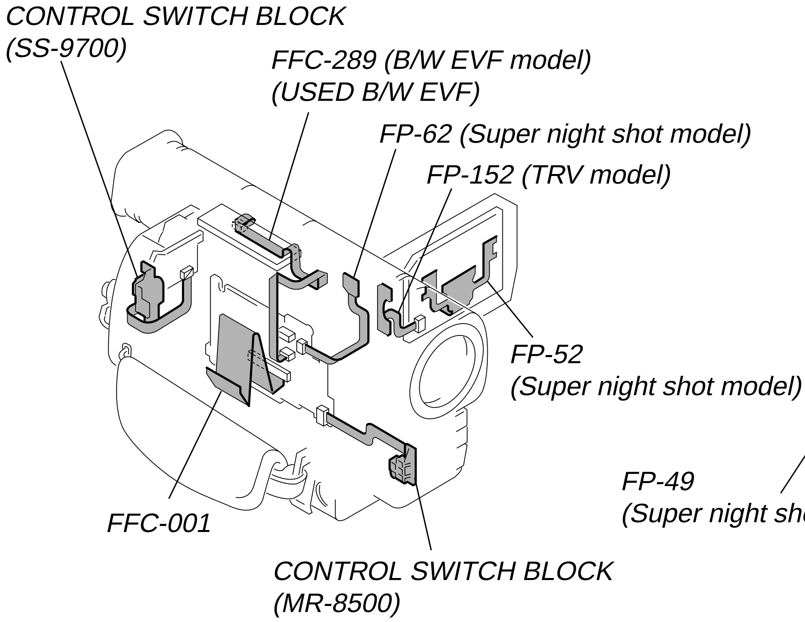

CF-67 (TRV model)
(USER CONTROL)
PD-117
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

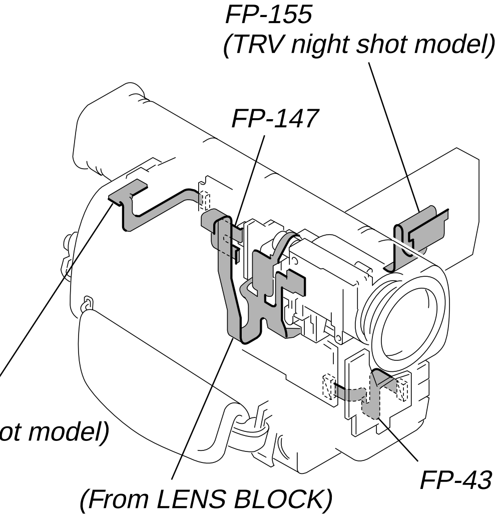

CF-66 (TR model)
(USER CONTROL)
LB-62 (Color EVF model)
(BACK LIGHT)
VF-141 (Color EVF model)
(RGB DRIVER, TG)

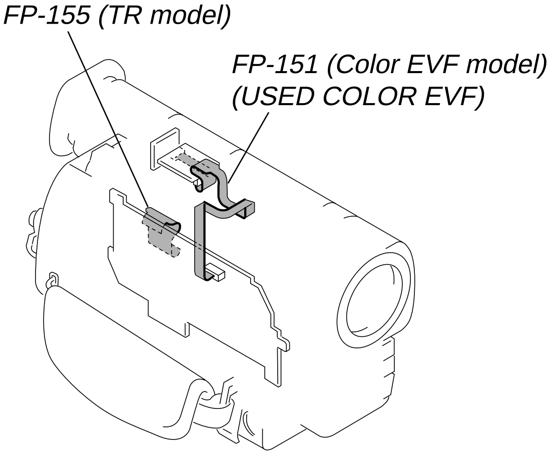
2-16. FLEXIBLE BOARDS LOCATION

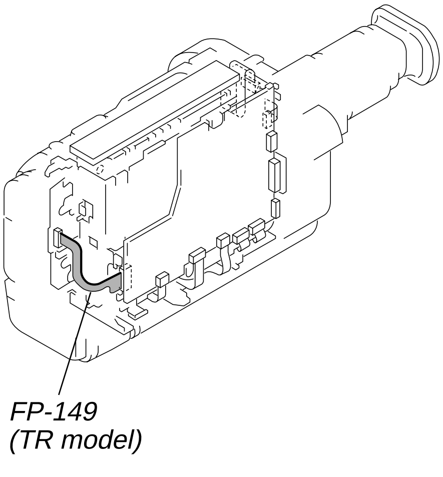

CONTROL SWITCH BLOCK
(FK-8500)
FP-46
(Video light model)
FP-150
FP-221
(From S/T REEL SENSOR)
(From CAPSTAN MOTOR)
(From DRUM MOTOR)
(From VIDEO HEAD)
FP-44
(TRV model)
FP-220
(From LOADING MOTOR, MODE SWITCH)


FP-249
FP-248
FP-355
FP-356


CONTROL SWITCH BLOCK
(SS-9700)
FFC-289 (B/W EVF model)
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(Super night shot model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)


FP-155
(TRV night shot model)
FP-147
FP-49
(Super night shot model)
(From LENS BLOCK)
FP-43

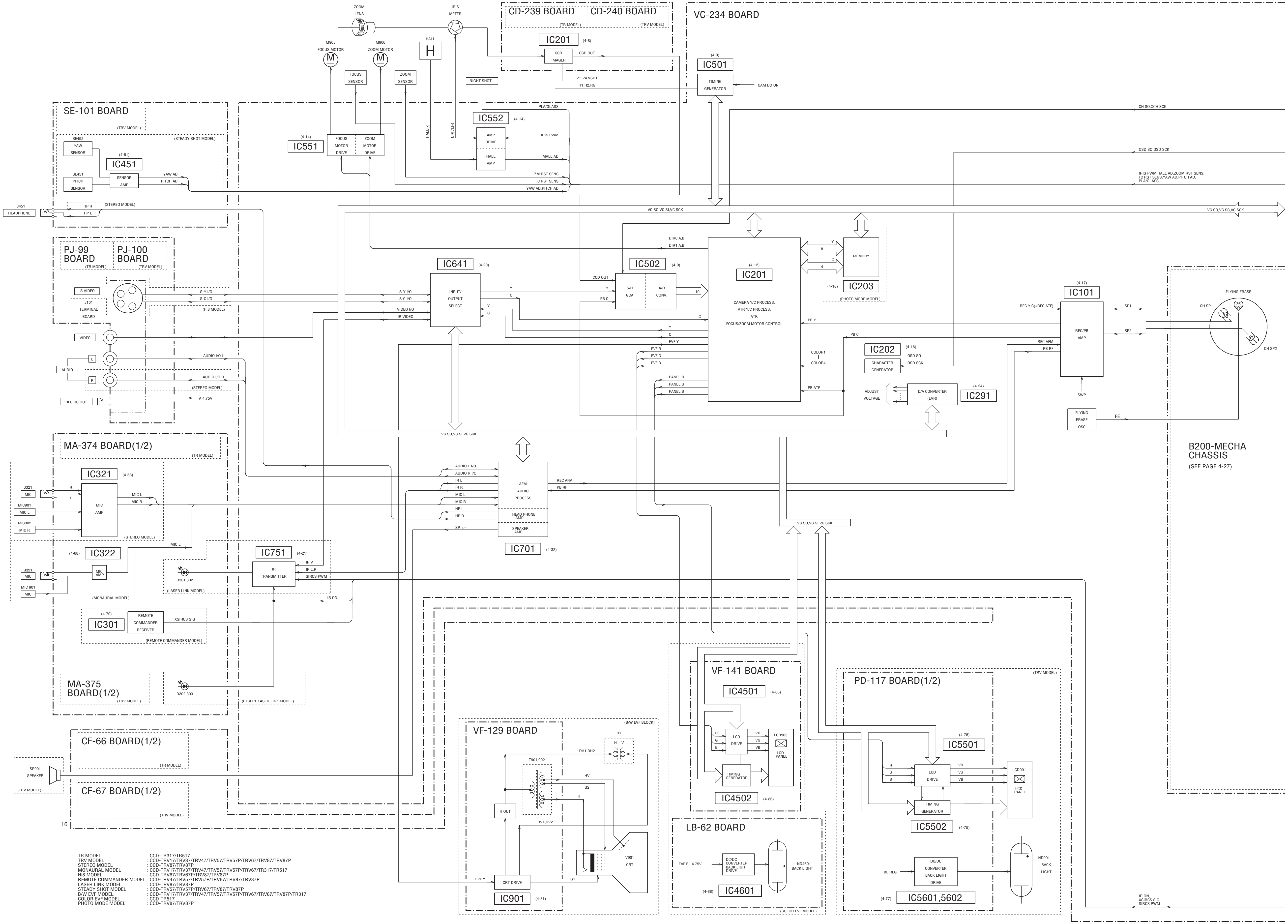

FP-155 (TR model)
FP-151 (Color EVF model)
(USED COLOR EVF)


FP-149
(TR model)

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

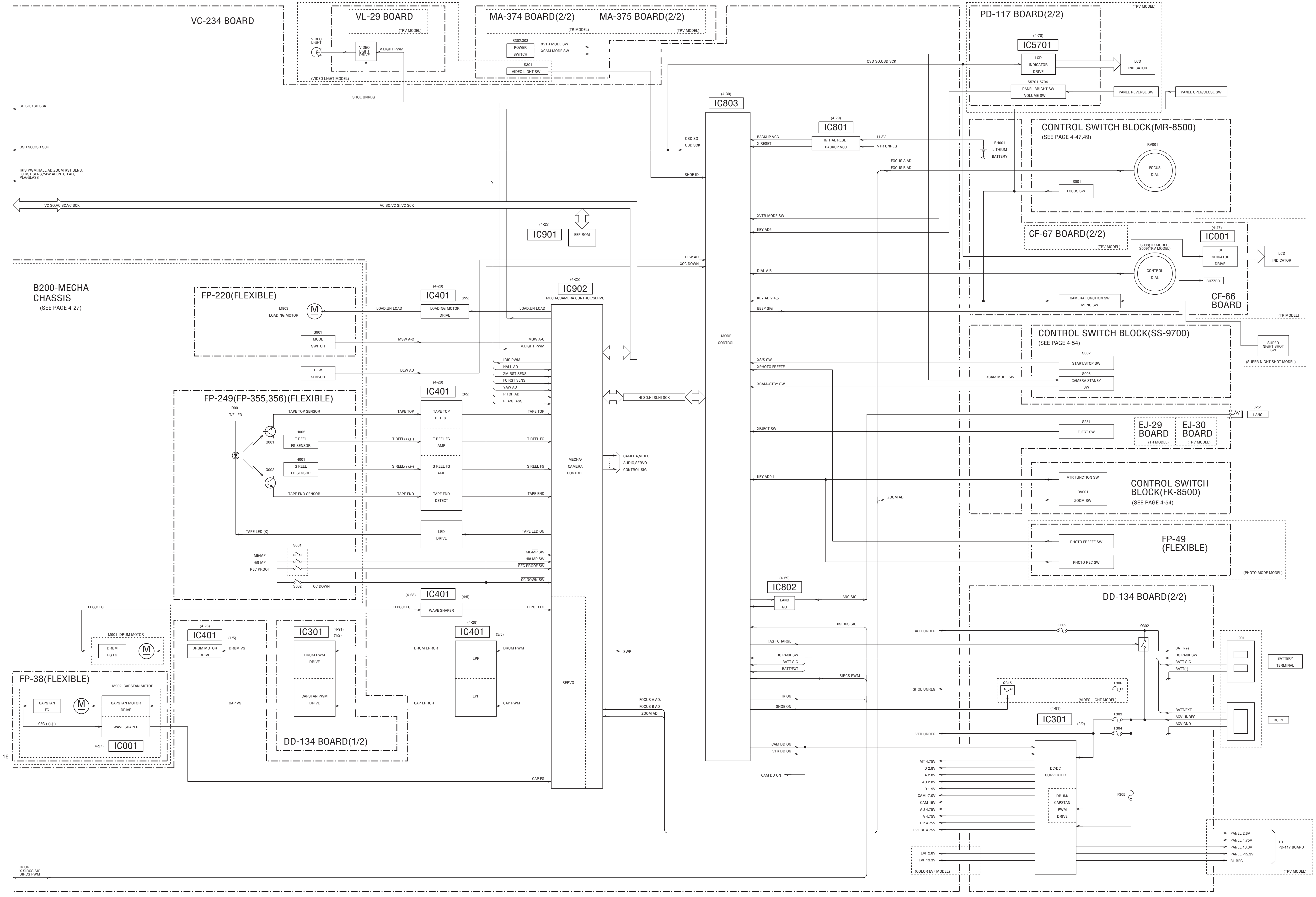

ZOOM LENS
IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
H
FOCUS SENSOR
ZOOM SENSOR
NIGHT SHOT
CD-239 BOARD
(TR MODEL)
CD-240 BOARD
(TRV MODEL)
IC201
(4-8)
CCD IMAGER
CCD OUT
V1-V4 VSHT
H1,H2,RG
VC-234 BOARD
(4-9)
IC501
TIMING GENERATOR
CAM DD ON
SE-101 BOARD
(TRV MODEL)
(STEADY SHOT MODEL)
SE452 YAW SENSOR
SE451 PITCH SENSOR
(4-61)
IC451
SENSOR AMP
YAW AD
PITCH AD
J451 HEADPHONE
HP R
HP L
(STEREO MODEL)
(4-14)
IC551
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
HALL(-)
DRIVE(-)
IC552
(4-14)
AMP DRIVE
HALL AMP
PLA/GLASS
IRIS PWM
MALL AD
ZM RST SENS
FC RST SENS
YAW AD,PITCH AD
CH SO,XCH SCK
OSD SO,OSD SCK
IRIS PWM,HALL AD,ZOOM RST SENS, FC RST SENS,YAW AD,PITCH AD, PLA/GLASS
VC SO,VC SI,VC SCK
VC SO,VC SC,VC SCK
PJ-99 BOARD
(TR MODEL)
PJ-100 BOARD
(TRV MODEL)
S VIDEO
J101 TERMINAL BOARD
S-Y I/O
S-C I/O
(Hi8 MODEL)
VIDEO
AUDIO
L
R
AUDIO I/O L
AUDIO I/O R
(STEREO MODEL)
RFU DC OUT
A 4.75V
IC641
(4-20)
INPUT/ OUTPUT SELECT
VIDEO I/O
IR VIDEO
Y
C
DIR0 A,B
DIR1 A,B
IC502
(4-9)
CCD OUT
S/H GCA
A/D CONV.
PB C
10
(4-12)
IC201
CAMERA Y/C PROCESS, VTR Y/C PROCESS, ATF, FOCUS/ZOOM MOTOR CONTROL
EVF Y
EVF R
EVF G
EVF B
PANEL R
PANEL G
PANEL B
MEMORY
8
4
(4-16)
IC203
(PHOTO MODE MODEL)
PB Y
IC202
(4-16)
COLOR1
COLOR4
CHARACTER GENERATOR
OSD SO
OSD SCK
PB ATF
ADJUST VOLTAGE
D/A CONVERTER (EVR)
(4-24)
IC291
(4-17)
IC101
REC Y C(+REC ATF)
REC/PB AMP
SP1
SP2
REC AFM
PB RF
SWP
FLYING ERASE OSC
FE
FLYING ERASE
CH SP1
CH SP2
B200-MECHA CHASSIS
(SEE PAGE 4-27)
MA-374 BOARD(1/2)
(TR MODEL)
IC321
(4-68)
J321 MIC
MIC901 MIC L
MIC902 MIC R
MIC AMP
MIC L
MIC R
(STEREO MODEL)
(4-68)
IC322
MIC 901 MIC
(MONAURAL MODEL)
AUDIO L I/O
AUDIO R I/O
IR L
IR R
HP L
HP R
SP +,-
AFM AUDIO PROCESS
HEAD PHONE AMP
SPEAKER AMP
IC701
(4-32)
IC751
(4-21)
IR TRANSMITTER
IR V
IR L,R
SIRCS PWM
IR ON
D301,302
(LASER LINK MODEL)
(4-70)
IC301
REMOTE COMMANDER RECEIVER
XSIRCS SIG
(REMOTE COMMANDER MODEL)
MA-375 BOARD(1/2)
(TRV MODEL)
D302,303
(EXCEPT LASER LINK MODEL)
CF-66 BOARD(1/2)
(TR MODEL)
CF-67 BOARD(1/2)
(TRV MODEL)
SP901 SPEAKER
(TRV MODEL)
16
VF-129 BOARD
(B/W EVF BLOCK)
DY
H V
DH1,DH2
T901,902
HV
G2
H
H OUT
DV1,DV2
EVF Y
CRT DRIVE
G1
V901 CRT
IC901
(4-81)
VF-141 BOARD
IC4501
(4-86)
R
G
B
LCD DRIVE
VR
VG
VB
LCD903
LCD PANEL
TIMING GENERATOR
IC4502
(4-86)
LB-62 BOARD
EVF BL 4.75V
DC/DC CONVERTER BACK LIGHT DRIVE
ND4601 BACK LIGHT
(4-88)
IC4601
(COLOR EVF MODEL)
PD-117 BOARD(1/2)
(TRV MODEL)
(4-75)
IC5501
LCD DRIVE
LCD901
LCD PANEL
TIMING GENERATOR
IC5502
(4-75)
BL REG
DC/DC CONVERTER BACK LIGHT DRIVE
ND901 BACK LIGHT
(4-77)
IC5601,5602
IR ON, XSIRCS SIG SIRCS PWM

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
MONAURAL MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TR317/TR517
Hi8 MODEL : CCD-TRV67/TRV67P/TRV87/TRV87P
REMOTE COMMANDER MODEL : CCD-TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
STEADY SHOT MODEL : CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
COLOR EVF MODEL : CCD-TR517
PHOTO MODE MODEL : CCD-TRV87/TRV87P

3-2. OVERALL BLOCK DIAGRAM (2/2)

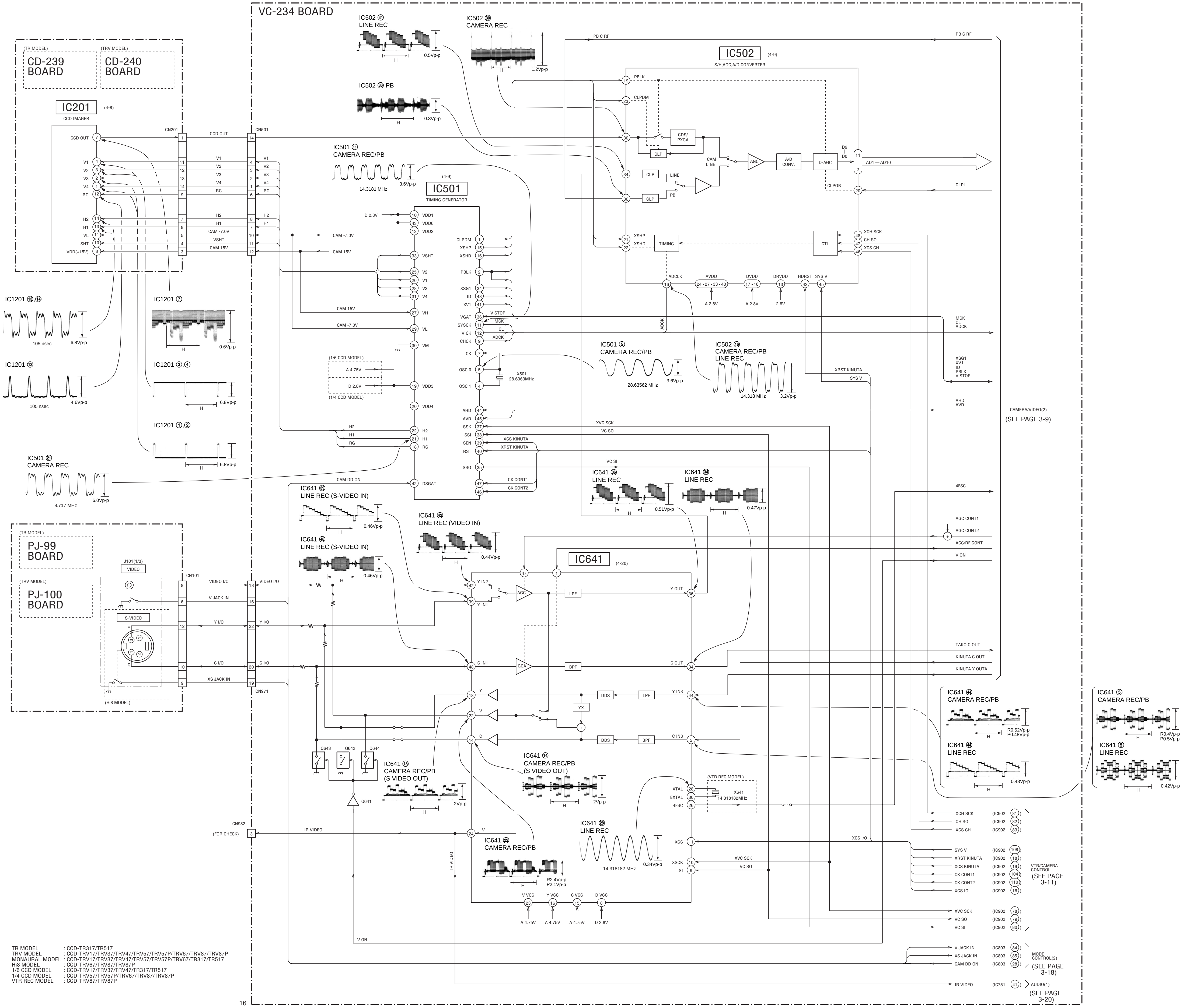
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517
SUPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P


VC-234 BOARD
VL-29 BOARD
(TRV MODEL)
VIDEO LIGHT
VIDEO LIGHT DRIVE
V LIGHT PWM
(VIDEO LIGHT MODEL)
SHOE UNREG
MA-374 BOARD(2/2)
(TR MODEL)
MA-375 BOARD(2/2)
(TRV MODEL)
S302,303 POWER SWITCH
XVTR MODE SW
XCAM MODE SW
S301 VIDEO LIGHT SW
PD-117 BOARD(2/2)
(TRV MODEL)
(4-78)
IC5701
LCD INDICATOR DRIVE
LCD INDICATOR
S5701-5704 PANEL BRIGHT SW VOLUME SW
PANEL REVERSE SW
PANEL OPEN/CLOSE SW
OSD SO,OSD SCK
CH SO,XCH SCK
IRIS PWM,HALL AD,ZOOM RST SENS, FC RST SENS,YAW AD,PITCH AD, PLA/GLASS
VC SO,VC SI,VC SCK
(4-30)
IC803
(4-29)
IC801
INITIAL RESET BACKUP VCC
BACKUP VCC
X RESET
LI 3V
VTR UNREG
BH001 LITHIUM BATTERY
OSD SO
OSD SCK
SHOE ID
FOCUS A AD, FOCUS B AD
CONTROL SWITCH BLOCK(MR-8500)
(SEE PAGE 4-47,49)
RV001
FOCUS DIAL
S001 FOCUS SW
XVTR MODE SW
KEY AD6
(4-25)
IC901
EEP ROM
DEW AD
XCC DOWN
CF-67 BOARD(2/2)
(TRV MODEL)
S008(TR MODEL) S009(TRV MODEL)
(4-47)
IC001
LCD INDICATOR DRIVE
LCD INDICATOR
CONTROL DIAL
BUZZER
CF-66 BOARD
(TR MODEL)
DIAL A,B
KEY AD 2,4,5
BEEP SIG
CAMERA FUNCTION SW MENU SW
B200-MECHA CHASSIS
(SEE PAGE 4-27)
FP-220(FLEXIBLE)
M903 LOADING MOTOR
S901 MODE SWITCH
DEW SENSOR
(4-28)
IC401
(2/5)
LOADING MOTOR DRIVE
LOAD,UN LOAD
MSW A-C
DEW AD
(4-25)
IC902
MECHA/CAMERA CONTROL/SERVO
V.LIGHT PWM
IRIS PWM
HALL AD
ZM RST SENS
FC RST SENS
YAW AD
PITCH AD
PLA/GLASS
MODE CONTROL
SUPER NIGHT SHOT SW
(SUPER NIGHT SHOT MODEL)
CONTROL SWITCH BLOCK(SS-9700)
(SEE PAGE 4-54)
S002 START/STOP SW
S003 CAMERA STANBY SW
XS/S SW
XPHOTO FREEZE
XCAM+STBY SW
XCAM MODE SW
FP-249(FP-355,356)(FLEXIBLE)
D001 T/E LED
TAPE TOP SENSOR
H002 T REEL FG SENSOR
Q001
H001 S REEL FG SENSOR
Q002
TAPE END SENSOR
TAPE LED (K)
(4-28)
IC401
(3/5)
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
LED DRIVE
TAPE TOP
T REEL(+),(-)
T REEL FG
S REEL(+),(-)
S REEL FG
TAPE END
TAPE LED ON
HI SO,HI SI,HI SCK
MECHA/ CAMERA CONTROL
CAMERA,VIDEO, AUDIO,SERVO CONTROL SIG
J251 LANC
S251 EJECT SW
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
XEJECT SW
KEY AD0,1
ZOOM AD
VTR FUNCTION SW
RV001 ZOOM SW
CONTROL SWITCH BLOCK(FK-8500)
(SEE PAGE 4-54)
FP-49 (FLEXIBLE)
PHOTO FREEZE SW
PHOTO REC SW
(PHOTO MODE MODEL)
S001
ME/MP
Hi8 MP
REC PROOF
S002 CC DOWN
ME/MP SW
Hi8 MP SW
REC PROOF SW
CC DOWN SW
(4-29)
IC802
LANC I/O
LANC SIG
XSIRCS SIG
DD-134 BOARD(2/2)
D PG,D FG
(4-28)
IC401
(4/5)
WAVE SHAPER
M901 DRUM MOTOR
DRUM PG FG
(4-28)
IC401
(1/5)
DRUM MOTOR DRIVE
DRUM VS
IC301
(4-91) (1/2)
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
DRUM ERROR
(4-28)
IC401
(5/5)
LPF
LPF
DRUM PWM
CAP ERROR
CAP PWM
SWP
SERVO
FP-38(FLEXIBLE)
M902 CAPSTAN MOTOR
CAPSTAN FG
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+),(-)
(4-27)
IC001
CAP VS
DD-134 BOARD(1/2)
16
CAP FG
FOCUS A AD,
FOCUS B AD
ZOOM AD
BATT UNREG
F302
Q302
FAST CHARGE
DC PACK SW
BATT SIG
BATT/EXT
SIRCS PWM
IR ON
SHOE ON
SHOE UNREG
Q315
F306
(VIDEO LIGHT MODEL)
J901
BATT(+)
DC PACK SW
BATT SIG
BATT(-)
BATTERY TERMINAL
BATT/EXT
ACV UNREG
ACV GND
DC IN
(4-91)
IC301
(2/2)
F303
F304
VTR UNREG
CAM DD ON
VTR DD ON
CAM DD ON
DC/DC CONVERTER
DRUM/ CAPSTAN PWM DRIVE
F305
MT 4.75V
D 2.8V
A 2.8V
AU 2.8V
D 1.9V
CAM -7.0V
CAM 15V
AU 4.75V
A 4.75V
RP 4.75V
EVF BL 4.75V
EVF 2.8V
EVF 13.3V
(COLOR EVF MODEL)
PANEL 2.8V
PANEL 4.75V
PANEL 13.3V
PANEL -15.3V
BL REG
TO PD-117 BOARD
(TRV MODEL)
IR ON, X SIRCS SIG SIRCS PWM

3-3. CAMERA/VIDEO BLOCK DIAGRAM (1/2)

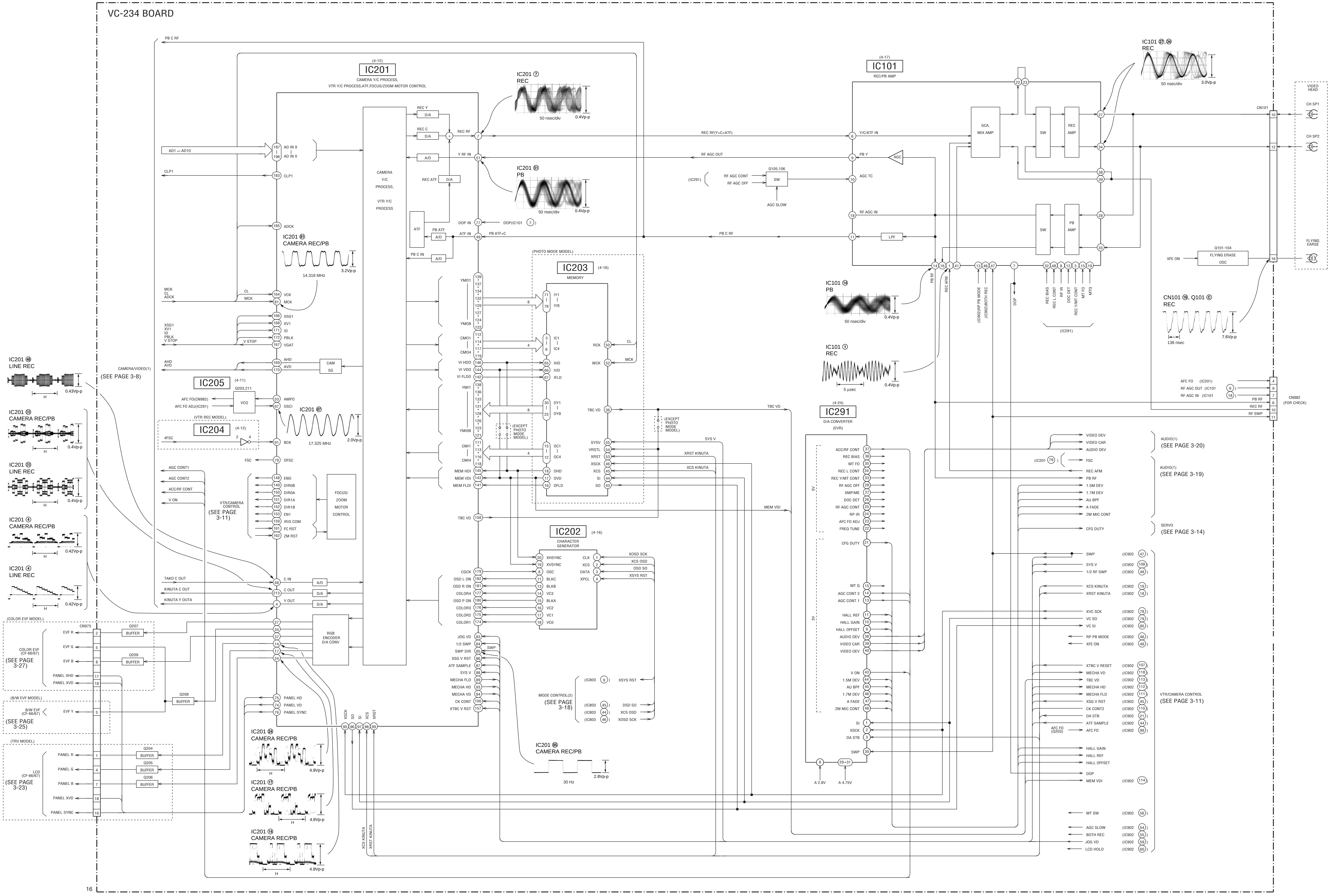
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
(TR MODEL)
CD-239 BOARD
(TRV MODEL)
CD-240 BOARD
IC201 (4-8)
CCD IMAGER
CCD OUT
V1
V2
V3
V4
RG
H2
H1
VL
SHT
VDD(+15V)
CN201
CN501
CCD OUT
CAM -7.0V
VSHT
CAM 15V
IC502 ㉞ LINE REC
0.5Vp-p
IC502 ㉚ CAMERA REC
1.2Vp-p
IC502 ㉚ PB
0.3Vp-p
IC501 ⑪ CAMERA REC/PB
3.6Vp-p
14.3181 MHz
IC501 (4-9)
TIMING GENERATOR
D 2.8V
VDD1
VDD6
VDD2
VSHT
VH
VL
VM
VDD3
VDD4
DSGAT
CLPDM
XSHP
XSHD
PBLK
XSG1
ID
XV1
VGAT
SYSCK
VICK
CHCK
CK
OSC 0
OSC 1
X501 28.6363MHz
AHD
AVD
SSK
SSI
SEN
RST
SSO
V STOP
MCK
CL
ADCK
XVC SCK
VC SO
XCS KINUTA
XRST KINUTA
VC SI
CK CONT1
CK CONT2
CAM DD ON
(1/6 CCD MODEL)
(1/4 CCD MODEL)
A 4.75V
D 2.8V
IC502 (4-9)
S/H,AGC,A/D CONVERTER
PB C RF
CDS/PXGA
CLP
CAM
LINE
PB
AGC
A/D CONV.
D-AGC
D9
D0
AD1 — AD10
CLPOB
CLP1
TIMING
CTL
XCH SCK
CH SO
XCS CH
ADCLK
AVDD
DVDD
DRVDD
HDRST
SYS V
A 2.8V
A 2.8V
2.8V
IC1201 ⑬,⑭
105 nsec
6.8Vp-p
IC1201 ⑦
0.6Vp-p
IC1201 ⑫
4.6Vp-p
IC1201 ③,④
6.8Vp-p
IC1201 ①,②
6.8Vp-p
IC501 ㉑ CAMERA REC
6.0Vp-p
8.717 MHz
IC501 ⑤ CAMERA REC/PB
28.63562 MHz
3.6Vp-p
IC502 ⑯ CAMERA REC/PB LINE REC
14.318 MHz
3.2Vp-p
XRST KINUTA
SYS V
MCK CL ADCK
XSG1 XV1 ID PBLK V STOP
AHD AVD
CAMERA/VIDEO(2)
(SEE PAGE 3-9)
4FSC
IC641 ㊴ LINE REC (S-VIDEO IN)
0.46Vp-p
IC641 ㊷ LINE REC (VIDEO IN)
0.44Vp-p
IC641 ㊽ LINE REC (S-VIDEO IN)
0.46Vp-p
IC641 ㊱ LINE REC
0.51Vp-p
IC641 ㉞ LINE REC
0.47Vp-p
AGC CONT1
AGC CONT2
ACC/RF CONT
V ON
IC641 (4-20)
Y IN2
Y IN1
AGC
LPF
Y OUT
C IN1
GCA
BPF
C OUT
DDS
Y IN3
YX
C IN3
TAKO C OUT
KINUTA C OUT
KINUTA Y OUTA
(TR MODEL)
PJ-99 BOARD
(TRV MODEL)
PJ-100 BOARD
J101(1/3)
VIDEO
S-VIDEO
(Hi8 MODEL)
CN101
VIDEO I/O
V JACK IN
Y I/O
C I/O
XS JACK IN
CN971
Q643
Q642
Q644
Q641
IC641 ⑲ CAMERA REC/PB (S VIDEO OUT)
2Vp-p
IC641 ⑭ CAMERA REC/PB (S VIDEO OUT)
2Vp-p
IC641 ㉒ CAMERA REC/PB
R2.4Vp-p
P2.1Vp-p
IC641 ㉖ LINE REC
0.34Vp-p
14.318182 MHz
(VTR REC MODEL)
XTAL
EXTAL
4FSC
X641 14.318182MHz
XCS
XSCK
SI
XCS I/O
V VCC
Y VCC
C VCC
D VCC
A 4.75V
A 4.75V
A 4.75V
D 2.8V
CN982
(FOR CHECK)
IR VIDEO
V ON
IC641 ㊹ CAMERA REC/PB
R0.52Vp-p
P0.48Vp-p
IC641 ㊹ LINE REC
0.43Vp-p
IC641 ⑤ CAMERA REC/PB
R0.4Vp-p
P0.5Vp-p
IC641 ⑤ LINE REC
0.42Vp-p
XCH SCK (IC902 81)
CH SO (IC902 82)
XCS CH (IC902 83)
SYS V (IC902 108)
XRST KINUTA (IC902 18)
XCS KINUTA (IC902 19)
CK CONT1 (IC902 104)
CK CONT2 (IC902 110)
XCS ID (IC902 16)
XVC SCK (IC902 78)
VC SO (IC902 79)
VC SI (IC902 80)
VTR/CAMERA CONTROL
(SEE PAGE 3-11)
V JACK IN (IC803 84)
XS JACK IN (IC803 85)
CAM DD ON (IC803 28)
MODE CONTROL(2)
(SEE PAGE 3-18)
IR VIDEO (IC751 41)
AUDIO(1)
(SEE PAGE 3-20)
16

TR MODEL	: CCD-TR317/TR517
TRV MODEL	: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
MONAURAL MODEL	: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TR317/TR517
Hi8 MODEL	: CCD-TRV67/TRV87/TRV87P
1/6 CCD MODEL	: CCD-TRV17/TRV37/TRV47/TR317/TR517
1/4 CCD MODEL	: CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P
VTR REC MODEL	: CCD-TRV87/TRV87P

3-4. CAMERA/VIDEO BLOCK DIAGRAM (2/2)

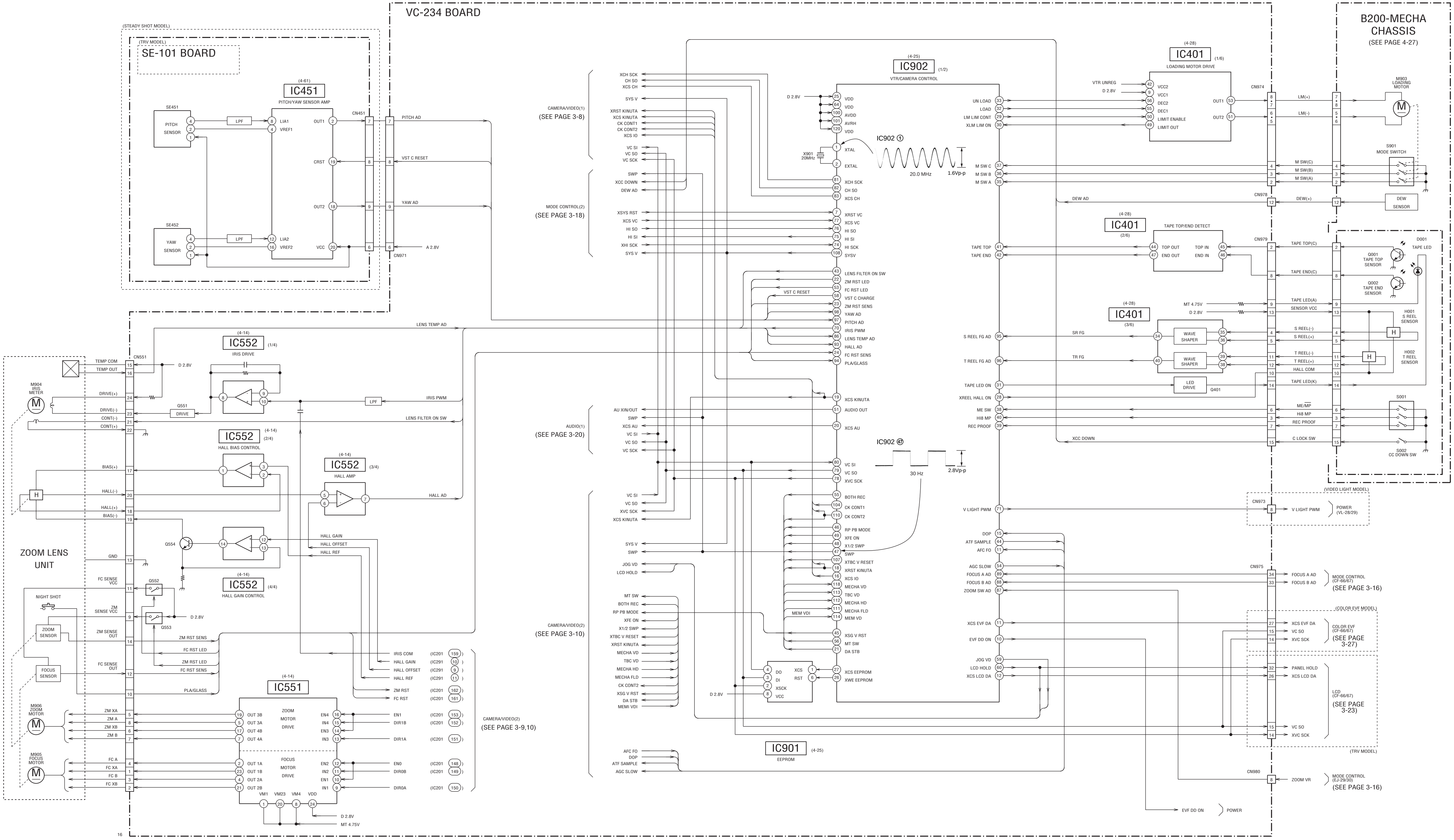
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
IC201
CAMERA Y/C PROCESS,
VTR Y/C PROCESS,ATF,FOCUS/ZOOM MOTOR CONTROL
(4-12)
CAMERA Y/C PROCESS, VTR Y/C PROCESS
IC201 ⑦ REC
50 nsec/div
0.4Vp-p
IC201 ⑤① PB
IC201 ⑧⑤ CAMERA REC/PB
14.318 MHz
3.2Vp-p
IC201 ⑥⑦
17.325 MHz
2.0Vp-p
IC203
MEMORY
(4-16)
(PHOTO MODE MODEL)
IC205
(4-11)
VCO
CAM SG
IC204
(4-12)
(VTR REC MODEL)
FOCUS/ ZOOM MOTOR CONTROL
VTR/CAMERA CONTROL
(SEE PAGE 3-11)
CAMERA/VIDEO(1)
(SEE PAGE 3-8)
IC202
CHARACTER GENERATOR
(4-16)
RGB ENCODER D/A CONV
MODE CONTROL(2)
(SEE PAGE 3-18)
IC201 ⑧⑥ CAMERA REC/PB
30 Hz
2.8Vp-p
IC201 ⑳④ CAMERA REC/PB
4.8Vp-p
IC201 ⑰ CAMERA REC/PB
IC201 ⑭ CAMERA REC/PB
IC201 ④⑧ LINE REC
0.43Vp-p
IC201 ⑬ CAMERA REC/PB
0.4Vp-p
IC201 ⑬ LINE REC
IC201 ④ CAMERA REC/PB
0.42Vp-p
IC201 ④ LINE REC
(COLOR EVF MODEL)
COLOR EVF (CF-66/67)
(SEE PAGE 3-27)
(B/W EVF MODEL)
B/W EVF (CF-66/67)
(SEE PAGE 3-25)
(TRV MODEL)
LCD (CF-66/67)
(SEE PAGE 3-23)
CN975
BUFFER
IC101
REC/PB AMP
(4-17)
GCA, MIX AMP
SW
REC AMP
PB AMP
AGC
LPF
IC101 ②⑦,③④ REC
3.0Vp-p
IC101 ⑭ PB
IC101 ① REC
5 µsec
CN101 ⑪, Q101 © REC
138 nsec
7.6Vp-p
VIDEO HEAD
CH SP1
CH SP2
FLYING EARSE
Q101-104 FLYING ERASE OSC
XFE ON
CN101
CN982 (FOR CHECK)
IC291
D/A CONVERTER (EVR)
(4-24)
AUDIO(1)
(SEE PAGE 3-20)
AUDIO(1)
(SEE PAGE 3-19)
SERVO
(SEE PAGE 3-14)
VTR/CAMERA CONTROL
(SEE PAGE 3-11)
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
VTR REC MODEL : CCD-TRV87/TRV87P
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
COLOR EVF MODEL : CCD-TR517
PHOTO MODE MODEL : CCD-TRV87/TRV87P

3-5. VTR/CAMERA CONTROL BLOCK DIAGRAM

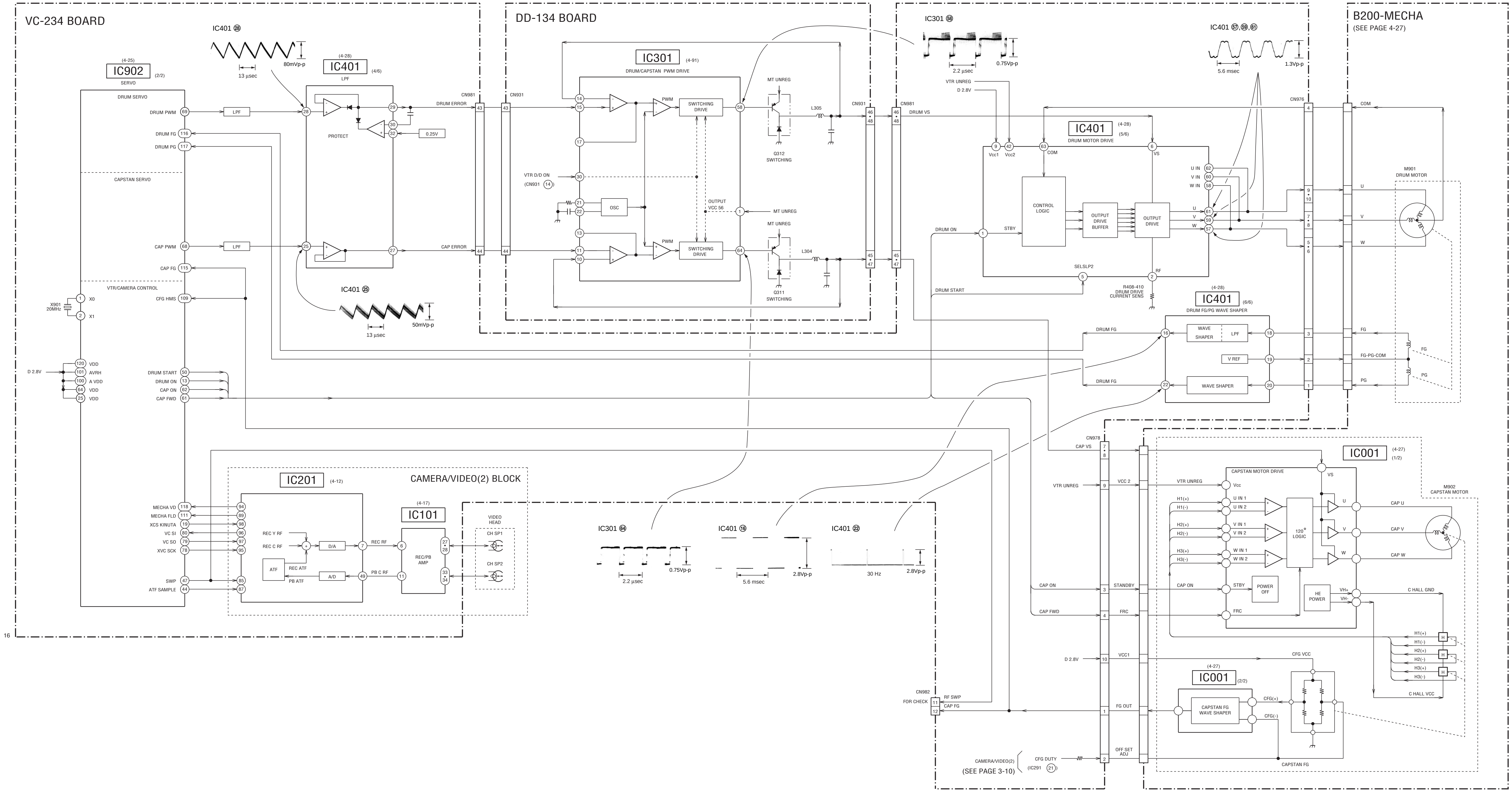
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
B200-MECHA CHASSIS
(SEE PAGE 4-27)
(STEADY SHOT MODEL)
(TRV MODEL)
SE-101 BOARD
SE451
PITCH SENSOR
SE452
YAW SENSOR
LPF
(4-61)
IC451
PITCH/YAW SENSOR AMP
LIA1
VREF1
LIA2
VREF2
OUT1
CRST
OUT2
VCC
CN451
CN971
PITCH AD
VST C RESET
YAW AD
A 2.8V
(4-25)
IC902
(1/2)
VTR/CAMERA CONTROL
D 2.8V
VDD
AVDD
AVRH
XTAL
EXTAL
X901 20MHz
IC902 ①
20.0 MHz
1.6Vp-p
XCH SCK
CH SO
XCS CH
XRST VC
XCS VC
HI SO
HI SI
HI SCK
SYSV
LENS FILTER ON SW
ZM RST LED
FC RST LED
VST C CHARGE
ZM RST SENS
YAW AD
PITCH AD
IRIS PWM
LENS TEMP AD
HALL AD
FC RST SENS
PLA/GLASS
XCS KINUTA
AUDIO OUT
XCS AU
IC902 ㊼
30 Hz
2.8Vp-p
VC SI
VC SO
XVC SCK
BOTH REC
CK CONT1
CK CONT2
RP PB MODE
XFE ON
X1/2 SWP
SWP
XTBC V RESET
XRST KINUTA
XCS IO
MECHA VD
TBC VD
MECHA HD
MECHA FLD
MEM VD
MEM VDI
XSG V RST
MT SW
DA STB
XCS EEPROM
XWE EEPROM
DO
DI
XSCK
VCC
XCS
RST
IC901
(4-25)
EEPROM
CAMERA/VIDEO(1)
(SEE PAGE 3-8)
MODE CONTROL(2)
(SEE PAGE 3-18)
AUDIO(1)
(SEE PAGE 3-20)
CAMERA/VIDEO(2)
(SEE PAGE 3-10)
CAMERA/VIDEO(2)
(SEE PAGE 3-9,10)
XCS IO
XRST KINUTA
XCS KINUTA
CK CONT1
CK CONT2
SYS V
XCC DOWN
DEW AD
XSYS RST
XHI SCK
AU XIN/OUT
JOG VD
LCD HOLD
AFC FO
DOP
ATF SAMPLE
AGC SLOW
UN LOAD
LOAD
LM LIM CONT
XLM LIM ON
M SW C
M SW B
M SW A
TAPE TOP
TAPE END
S REEL FG AD
T REEL FG AD
TAPE LED ON
XREEL HALL ON
ME SW
Hi8 MP
REC PROOF
V LIGHT PWM
FOCUS A AD
FOCUS B AD
ZOOM SW AD
XCS EVF DA
EVF DD ON
JOG VD
LCD HOLD
XCS LCD DA
VTR UNREG
(4-28)
IC401
(1/6)
LOADING MOTOR DRIVE
VCC2
VCC1
DEC2
DEC1
LIMIT ENABLE
LIMIT OUT
OUT1
OUT2
CN974
LM(+)
LM(-)
M903 LOADING MOTOR
S901 MODE SWITCH
M SW(C)
M SW(B)
M SW(A)
CN978
DEW(+)
DEW SENSOR
(4-28)
IC401
(2/6)
TAPE TOP/END DETECT
TOP OUT
END OUT
TOP IN
END IN
CN979
TAPE TOP(C)
TAPE END(C)
TAPE LED(A)
SENSOR VCC
D001 TAPE LED
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
MT 4.75V
(4-28)
IC401
(3/6)
SR FG
TR FG
WAVE SHAPER
LED DRIVE
Q401
S REEL(-)
S REEL(+)
T REEL(-)
T REEL(+)
HALL COM
TAPE LED(K)
H001 S REEL SENSOR
H002 T REEL SENSOR
S001
ME/MP
Hi8 MP
REC PROOF
C LOCK SW
S002 CC DOWN SW
(VIDEO LIGHT MODEL)
CN973
V LIGHT PWM
POWER (VL-28/29)
CN975
FOCUS A AD
FOCUS B AD
MODE CONTROL (CF-66/67)
(SEE PAGE 3-16)
(COLOR EVF MODEL)
XCS EVF DA
VC SO
XVC SCK
COLOR EVF (CF-66/67)
(SEE PAGE 3-27)
PANEL HOLD
XCS LCD DA
LCD (CF-66/67)
(SEE PAGE 3-23)
VC SO
XVC SCK
(TRV MODEL)
CN980
ZOOM VR
MODE CONTROL (EJ-29/30)
(SEE PAGE 3-16)
EVF DD ON
POWER
LENS TEMP AD
(4-14)
IC552
(1/4)
IRIS DRIVE
IRIS PWM
LENS FILTER ON SW
(4-14)
IC552
(2/4)
HALL BIAS CONTROL
(4-14)
IC552
(3/4)
HALL AMP
HALL AD
(4-14)
IC552
(4/4)
HALL GAIN CONTROL
HALL GAIN
HALL OFFSET
HALL REF
Q551 DRIVE
Q554
Q552
Q553
CN551
TEMP COM
TEMP OUT
D 2.8V
M904 IRIS METER
DRIVE(+)
DRIVE(-)
CONT(-)
CONT(+)
BIAS(+)
HALL(-)
HALL(+)
BIAS(-)
GND
FC SENSE VCC
NIGHT SHOT
ZM SENSE VCC
ZOOM SENSOR
ZM SENSE OUT
ZM RST SENS
FC RST LED
ZM RST LED
FC RST SENS
FOCUS SENSOR
FC SENSE OUT
PLA/GLASS
ZOOM LENS UNIT
M906 ZOOM MOTOR
ZM XA
ZM A
ZM XB
ZM B
M905 FOCUS MOTOR
FC A
FC XA
FC B
FC XB
(4-14)
IC551
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
OUT 3B
OUT 3A
OUT 4B
OUT 4A
OUT 1A
OUT 1B
OUT 2A
OUT 2B
EN4
IN4
EN3
IN3
EN2
IN2
EN1
IN1
VM1
VM23
VM4
VDD
D 2.8V
MT 4.75V
IRIS COM (IC201 159)
HALL GAIN (IC291 10)
HALL OFFSET (IC291 9)
HALL REF (IC291 11)
ZM RST (IC201 162)
FC RST (IC201 161)
EN1 (IC201 153)
DIR1B (IC201 152)
DIR1A (IC201 151)
EN0 (IC201 148)
DIR0B (IC201 149)
DIR0A (IC201 150)

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEADY SHOT MODEL : CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517

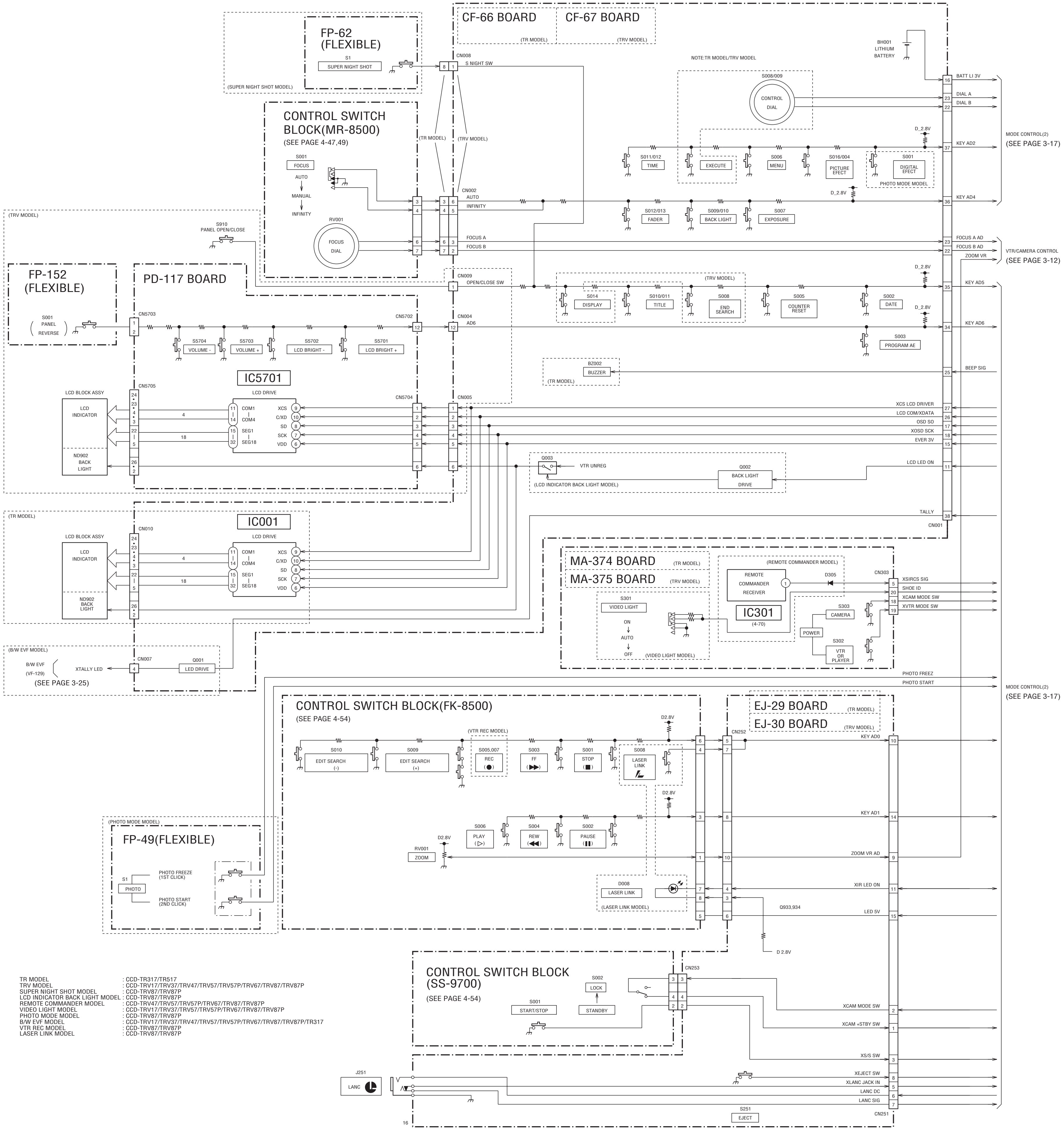
3-6. SERVO BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
DD-134 BOARD
B200-MECHA
(SEE PAGE 4-27)
IC902 (4-25) (2/2) SERVO
DRUM SERVO
DRUM PWM
DRUM FG
DRUM PG
CAPSTAN SERVO
CAP PWM
CAP FG
VTR/CAMERA CONTROL
CFG HMS
X901 20MHz
X0
X1
D 2.8V
VDD
AVRH
A VDD
DRUM START
DRUM ON
CAP ON
CAP FWD
MECHA VD
MECHA FLD
XCS KINUTA
VC SI
VC SO
XVC SCK
SWP
ATF SAMPLE
IC401 ㉘
80mVp-p
13 µsec
IC401 (4-28) (4/6) LPF
LPF
PROTECT
0.25V
IC401 ㉕
50mVp-p
13 µsec
CN981
CN931
DRUM ERROR
CAP ERROR
IC301 (4-91) DRUM/CAPSTAN PWM DRIVE
PWM
SWITCHING DRIVE
OSC
OUTPUT VCC 56
VTR D/D ON
(CN931 ⑭)
MT UNREG
Q312 SWITCHING
Q311 SWITCHING
L305
L304
DRUM VS
IC301 ㊿
2.2 µsec
0.75Vp-p
VTR UNREG
D 2.8V
IC401 (4-28) (5/6) DRUM MOTOR DRIVE
Vcc1
Vcc2
COM
VS
U IN
V IN
W IN
CONTROL LOGIC
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
STBY
DRUM ON
SELSLP2
RF
R408-410 DRUM DRIVE CURRENT SENS
DRUM START
IC401 (4-28) (6/6) DRUM FG/PG WAVE SHAPER
WAVE SHAPER
LPF
V REF
WAVE SHAPER
DRUM FG
IC401 (57),(59),(61)
5.6 msec
1.3Vp-p
CN976
COM
U
V
W
FG
FG-PG-COM
PG
M901 DRUM MOTOR
IC201 (4-12)
CAMERA/VIDEO(2) BLOCK
REC Y RF
REC C RF
D/A
A/D
ATF
REC ATF
PB ATF
REC RF
PB C RF
IC101 (4-17)
REC/PB AMP
VIDEO HEAD
CH SP1
CH SP2
IC301 (64)
0.75Vp-p
2.2 µsec
IC401 ⑯
2.8Vp-p
5.6 msec
IC401 ㉒
2.8Vp-p
30 Hz
CN978
CAP VS
VTR UNREG
CAP ON
CAP FWD
D 2.8V
CN982 FOR CHECK
RF SWP
CAP FG
CAMERA/VIDEO(2)
(IC291 ㉑)
CFG DUTY
(SEE PAGE 3-10)
VCC 2
STANDBY
FRC
VCC1
FG OUT
OFF SET ADJ
IC001 (4-27) (1/2)
CAPSTAN MOTOR DRIVE
Vcc
U IN 1
U IN 2
V IN 1
V IN 2
W IN 1
W IN 2
120° LOGIC
STBY
POWER OFF
HE POWER
VH+
VH-
H1(+)
H1(-)
H2(+)
H2(-)
H3(+)
H3(-)
C HALL GND
C HALL VCC
CAP U
CAP V
CAP W
M902 CAPSTAN MOTOR
IC001 (4-27) (2/2)
CAPSTAN FG WAVE SHAPER
CFG(+)
CFG(-)
CFG VCC
CAPSTAN FG
16

3-7. MODE CONTROL BLOCK DIAGRAM (1/2)

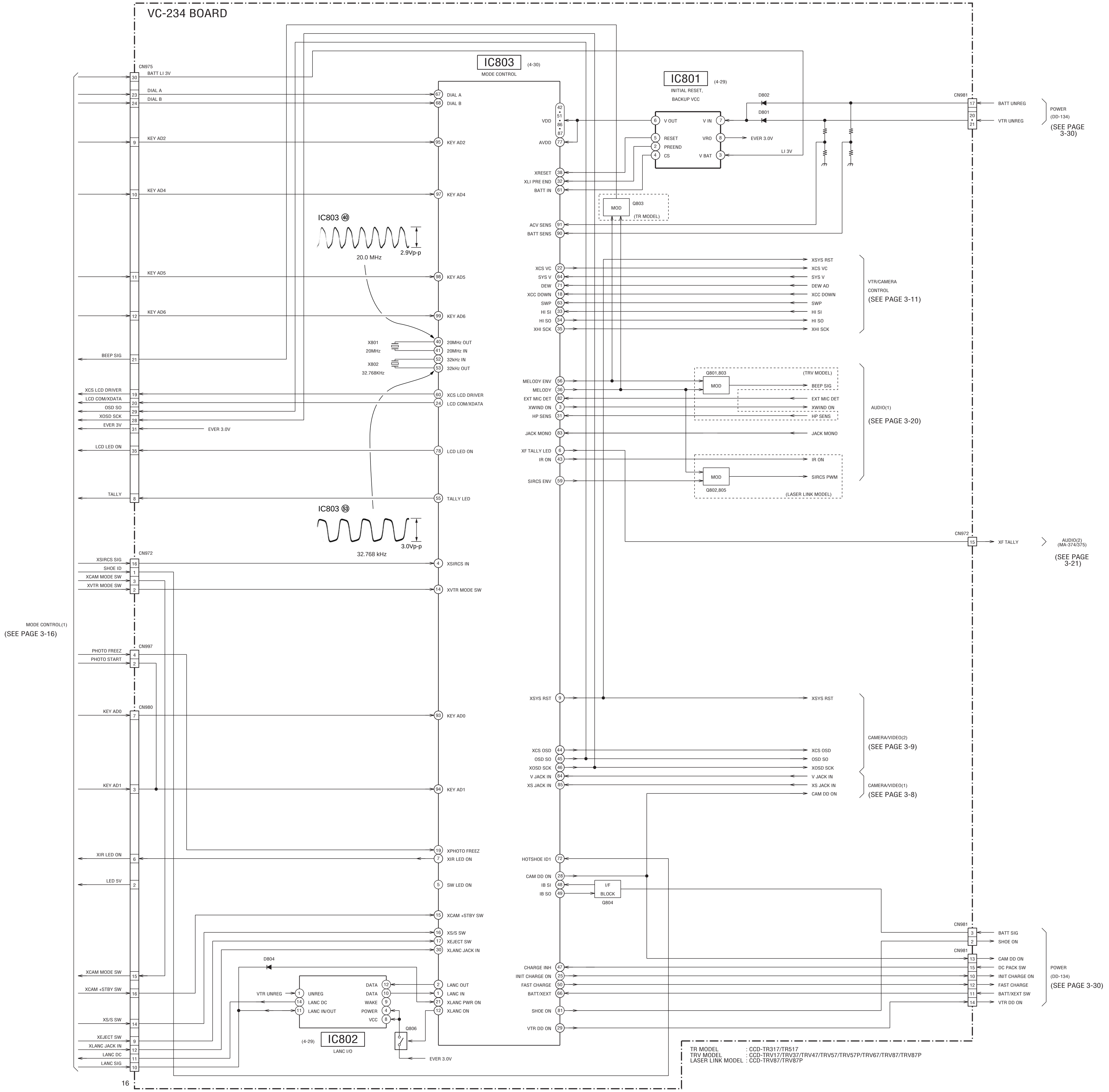
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


FP-62 (FLEXIBLE)
S1 SUPER NIGHT SHOT
(SUPER NIGHT SHOT MODEL)
CF-66 BOARD (TR MODEL)
CF-67 BOARD (TRV MODEL)
CN008 S NIGHT SW
BH001 LITHIUM BATTERY
NOTE:TR MODEL/TRV MODEL
S008/009 CONTROL DIAL
CONTROL SWITCH BLOCK(MR-8500) (SEE PAGE 4-47,49)
S001 FOCUS AUTO MANUAL INFINITY
RV001 FOCUS DIAL
(TR MODEL) (TRV MODEL)
CN002 AUTO INFINITY
S011/012 TIME
EXECUTE
S006 MENU
S016/004 PICTURE EFECT
S001 DIGITAL EFECT
PHOTO MODE MODEL
D_2.8V
S012/013 FADER
S009/010 BACK LIGHT
S007 EXPOSURE
FOCUS A FOCUS B
BATT LI 3V
DIAL A DIAL B
KEY AD2
KEY AD4
MODE CONTROL(2) (SEE PAGE 3-17)
FOCUS A AD FOCUS B AD ZOOM VR
VTR/CAMERA CONTROL (SEE PAGE 3-12)
(TRV MODEL)
S910 PANEL OPEN/CLOSE
CN009 OPEN/CLOSE SW
S014 DISPLAY
S010/011 TITLE
S008 END SEARCH
S005 COUNTER RESET
S002 DATE
S003 PROGRAM AE
KEY AD5 KEY AD6
BZ002 BUZZER (TR MODEL)
BEEP SIG
FP-152 (FLEXIBLE)
S001 PANEL REVERSE
PD-117 BOARD
CN5703 CN5702 CN004 AD6
S5704 VOLUME -
S5703 VOLUME +
S5702 LCD BRIGHT -
S5701 LCD BRIGHT +
IC5701 LCD DRIVE
CN5705 CN5704 CN005
LCD BLOCK ASSY
LCD INDICATOR
ND902 BACK LIGHT
COM1 COM4 SEG1 SEG18
XCS C/XD SO SCK VDD
XCS LCD DRIVER
LCD COM/XDATA
OSD SO
XOSD SCK
EVER 3V
Q003 VTR UNREG
Q002 BACK LIGHT DRIVE
(LCD INDICATOR BACK LIGHT MODEL)
LCD LED ON
TALLY
CN001
(TR MODEL)
CN010
IC001 LCD DRIVE
MA-374 BOARD (TR MODEL)
MA-375 BOARD (TRV MODEL)
(REMOTE COMMANDER MODEL)
REMOTE COMMANDER RECEIVER
IC301 (4-70)
D305
CN303
XSIRCS SIG
SHOE ID
XCAM MODE SW
XVTR MODE SW
S301 VIDEO LIGHT ON AUTO OFF
(VIDEO LIGHT MODEL)
S303 CAMERA
POWER
S302 VTR OR PLAYER
(B/W EVF MODEL)
B/W EVF (VF-129)
XTALLY LED
(SEE PAGE 3-25)
CN007
Q001 LED DRIVE
PHOTO FREEZ
PHOTO START
MODE CONTROL(2) (SEE PAGE 3-17)
CONTROL SWITCH BLOCK(FK-8500) (SEE PAGE 4-54)
(VTR REC MODEL)
S010 EDIT SEARCH (-)
S009 EDIT SEARCH (+)
S005,007 REC (●)
S003 FF (▶▶)
S001 STOP (■)
S008 LASER LINK
S006 PLAY (▷)
S004 REW (◀◀)
S002 PAUSE (❚❚)
D2.8V
RV001 ZOOM
D008 LASER LINK
(LASER LINK MODEL)
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
CN252
KEY AD0
KEY AD1
ZOOM VR AD
XIR LED ON
Q933,934
LED 5V
D 2.8V
(PHOTO MODE MODEL)
FP-49(FLEXIBLE)
S1 PHOTO
PHOTO FREEZE (1ST CLICK)
PHOTO START (2ND CLICK)
CONTROL SWITCH BLOCK (SS-9700) (SEE PAGE 4-54)
S002 LOCK
S001 START/STOP
STANDBY
CN253
XCAM MODE SW
XCAM +STBY SW
XS/S SW
XEJECT SW
XLANC JACK IN
LANC DC
LANC SIG
J251 LANC
S251 EJECT
CN251

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
SUPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P
LCD INDICATOR BACK LIGHT MODEL : CCD-TRV87/TRV87P
REMOTE COMMANDER MODEL : CCD-TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P
PHOTO MODE MODEL : CCD-TRV87/TRV87P
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
VTR REC MODEL : CCD-TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P

3-8. MODE CONTROL BLOCK DIAGRAM (2/2)

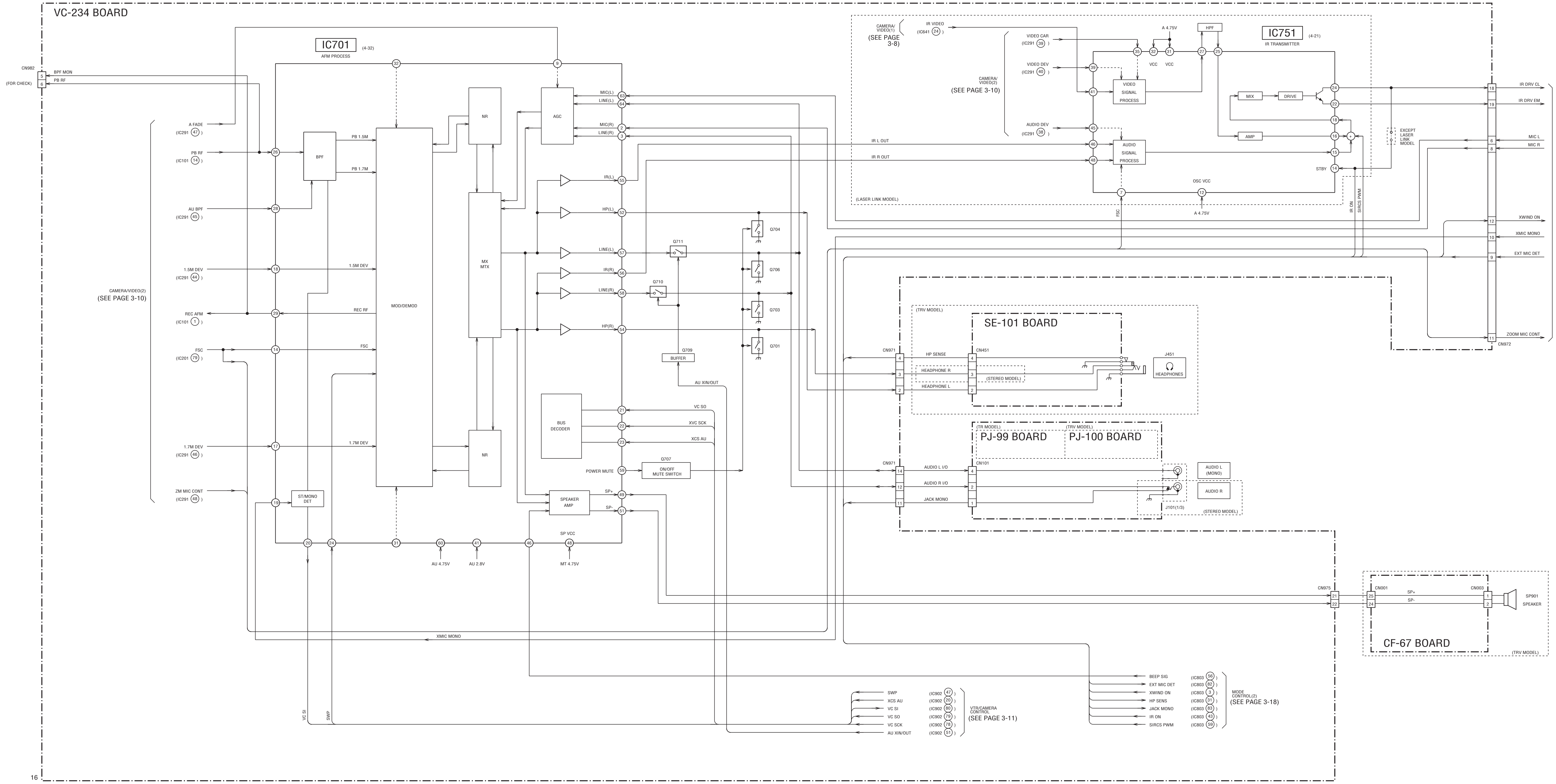
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
IC803 (4-30)
MODE CONTROL
IC801 (4-29)
INITIAL RESET, BACKUP VCC
IC802 (4-29)
LANC I/O
CN975
BATT LI 3V
DIAL A
DIAL B
KEY AD2
KEY AD4
KEY AD5
KEY AD6
BEEP SIG
XCS LCD DRIVER
LCD COM/XDATA
OSD SO
XOSD SCK
EVER 3V
EVER 3.0V
LCD LED ON
TALLY
TALLY LED
IC803 ⑩
20.0 MHz
2.9Vp-p
IC803 ⑬
32.768 kHz
3.0Vp-p
X801 20MHz
X802 32.768KHz
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
VDD
AVDD
XRESET
XLI PRE END
BATT IN
ACV SENS
BATT SENS
Q803 MOD (TR MODEL)
D802
D801
V OUT
V IN
RESET
PREEND
CS
VRO
V BAT
LI 3V
CN981
BATT UNREG
VTR UNREG
POWER (DD-134)
(SEE PAGE 3-30)
XCS VC
SYS V
DEW
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
XSYS RST
DEW AD
VTR/CAMERA CONTROL
(SEE PAGE 3-11)
MELODY ENV
MELODY
EXT MIC DET
XWIND ON
HP SENS
JACK MONO
XF TALLY LED
IR ON
SIRCS ENV
Q801,803 (TRV MODEL)
BEEP SIG
SIRCS PWM
Q802,805 (LASER LINK MODEL)
AUDIO(1)
(SEE PAGE 3-20)
CN972
XF TALLY
AUDIO(2) (MA-374/375)
(SEE PAGE 3-21)
XSIRCS SIG
SHOE ID
XCAM MODE SW
XVTR MODE SW
XSIRCS IN
MODE CONTROL(1)
(SEE PAGE 3-16)
CN997
PHOTO FREEZ
PHOTO START
CN980
KEY AD0
KEY AD1
XSYS RST
CAMERA/VIDEO(2)
(SEE PAGE 3-9)
XCS OSD
OSD SO
XOSD SCK
V JACK IN
XS JACK IN
CAM DD ON
CAMERA/VIDEO(1)
(SEE PAGE 3-8)
XPHOTO FREEZ
XIR LED ON
XIR LED ON
LED 5V
SW LED ON
HOTSHOE ID1
CAM DD ON
IB SI
IB SO
I/F BLOCK Q804
XCAM +STBY SW
XS/S SW
XEJECT SW
XLANC JACK IN
D804
VTR UNREG
UNREG
LANC DC
LANC IN/OUT
DATA
WAKE
POWER
VCC
LANC OUT
LANC IN
XLANC PWR ON
XLANC ON
Q806
EVER 3.0V
CHARGE INH
INIT CHARGE ON
FAST CHARGE
BATT/XEXT
SHOE ON
VTR DD ON
BATT SIG
DC PACK SW
INIT CHARGE ON
BATT/XEXT SW
VTR DD ON
POWER (DD-134)
(SEE PAGE 3-30)
LANC DC
LANC SIG
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P

3-9. AUDIO BLOCK DIAGRAM (1/2)

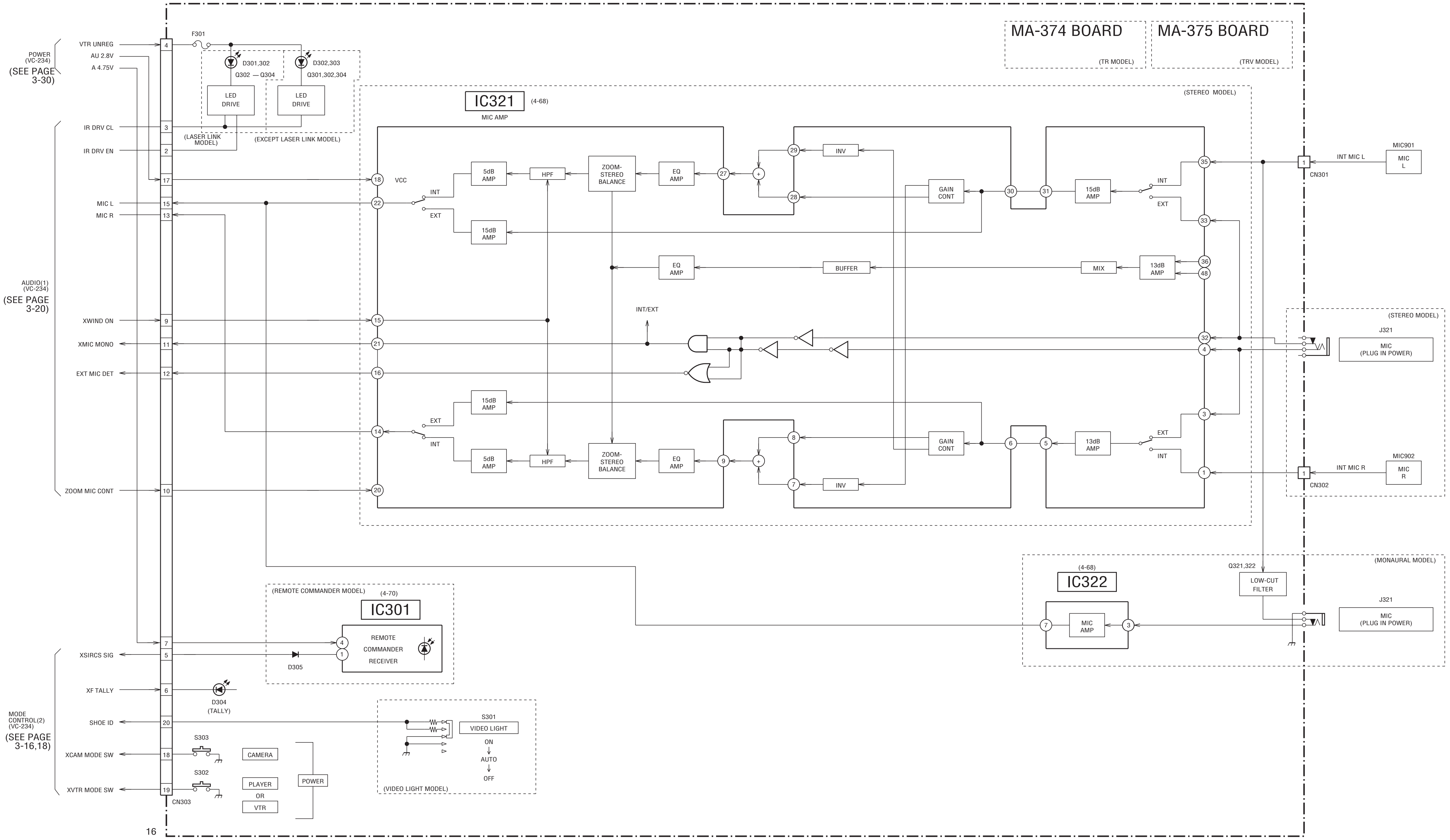
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
IC701
(4-32)
AFM PROCESS
CN982
(FOR CHECK)
BPF MON
PB RF
A FADE
(IC291 47)
PB RF
(IC101 14)
AU BPF
(IC291 45)
1.5M DEV
(IC291 44)
CAMERA/VIDEO(2)
(SEE PAGE 3-10)
REC AFM
(IC101 1)
FSC
(IC201 79)
1.7M DEV
(IC291 46)
ZM MIC CONT
(IC291 48)
BPF
PB 1.5M
PB 1.7M
1.5M DEV
REC RF
FSC
1.7M DEV
MOD/DEMOD
NR
AGC
MX
MTX
NR
ST/MONO
DET
BUS
DECODER
SPEAKER
AMP
MIC(L)
LINE(L)
MIC(R)
LINE(R)
IR(L)
HP(L)
LINE(L)
IR(R)
LINE(R)
HP(R)
Q711
Q710
Q709
BUFFER
Q704
Q706
Q703
Q701
AU XIN/OUT
VC SO
XVC SCK
XCS AU
POWER MUTE
Q707
ON/OFF
MUTE SWITCH
SP+
SP-
SP VCC
AU 4.75V
AU 2.8V
MT 4.75V
XMIC MONO
VC SI
SWP
CAMERA/
VIDEO(1)
(SEE PAGE 3-8)
IR VIDEO
(IC641 24)
VIDEO CAR
(IC291 39)
VIDEO DEV
(IC291 40)
CAMERA/
VIDEO(2)
(SEE PAGE 3-10)
AUDIO DEV
(IC291 38)
IR L OUT
IR R OUT
A 4.75V
HPF
IC751
(4-21)
IR TRANSMITTER
VCC
VCC
VIDEO
SIGNAL
PROCESS
AUDIO
SIGNAL
PROCESS
MIX
DRIVE
AMP
STBY
OSC VCC
A 4.75V
FSC
IR ON
SIRCS PWM
(LASER LINK MODEL)
EXCEPT
LASER
LINK
MODEL
IR DRV CL
IR DRV EM
MIC L
MIC R
AUDIO(2)
(MA-374/375)
(SEE PAGE 3-21)
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
CN972
(TRV MODEL)
SE-101 BOARD
CN971
HP SENSE
CN451
HEADPHONE R
(STEREO MODEL)
HEADPHONE L
J451
HEADPHONES
(TR MODEL)
(TRV MODEL)
PJ-99 BOARD
PJ-100 BOARD
CN971
CN101
AUDIO L I/O
AUDIO R I/O
JACK MONO
AUDIO L
(MONO)
AUDIO R
J101(1/3)
(STEREO MODEL)
CN975
CN001
CN003
SP+
SP-
SP901
SPEAKER
CF-67 BOARD
(TRV MODEL)
BEEP SIG
EXT MIC DET
XWIND ON
HP SENS
JACK MONO
IR ON
SIRCS PWM
(IC803 56)
(IC803 82)
(IC803 3)
(IC803 31)
(IC803 83)
(IC803 43)
(IC803 59)
MODE
CONTROL(2)
(SEE PAGE 3-18)
SWP
XCS AU
VC SI
VC SO
VC SCK
AU XIN/OUT
(IC902 47)
(IC902 20)
(IC902 80)
(IC902 79)
(IC902 78)
(IC902 51)
VTR/CAMERA
CONTROL
(SEE PAGE 3-11)
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
MONAURAL MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TR317/TR517
LASER LINK MODEL : CCD-TRV87/TRV87P

3-10. AUDIO BLOCK DIAGRAM (2/2)

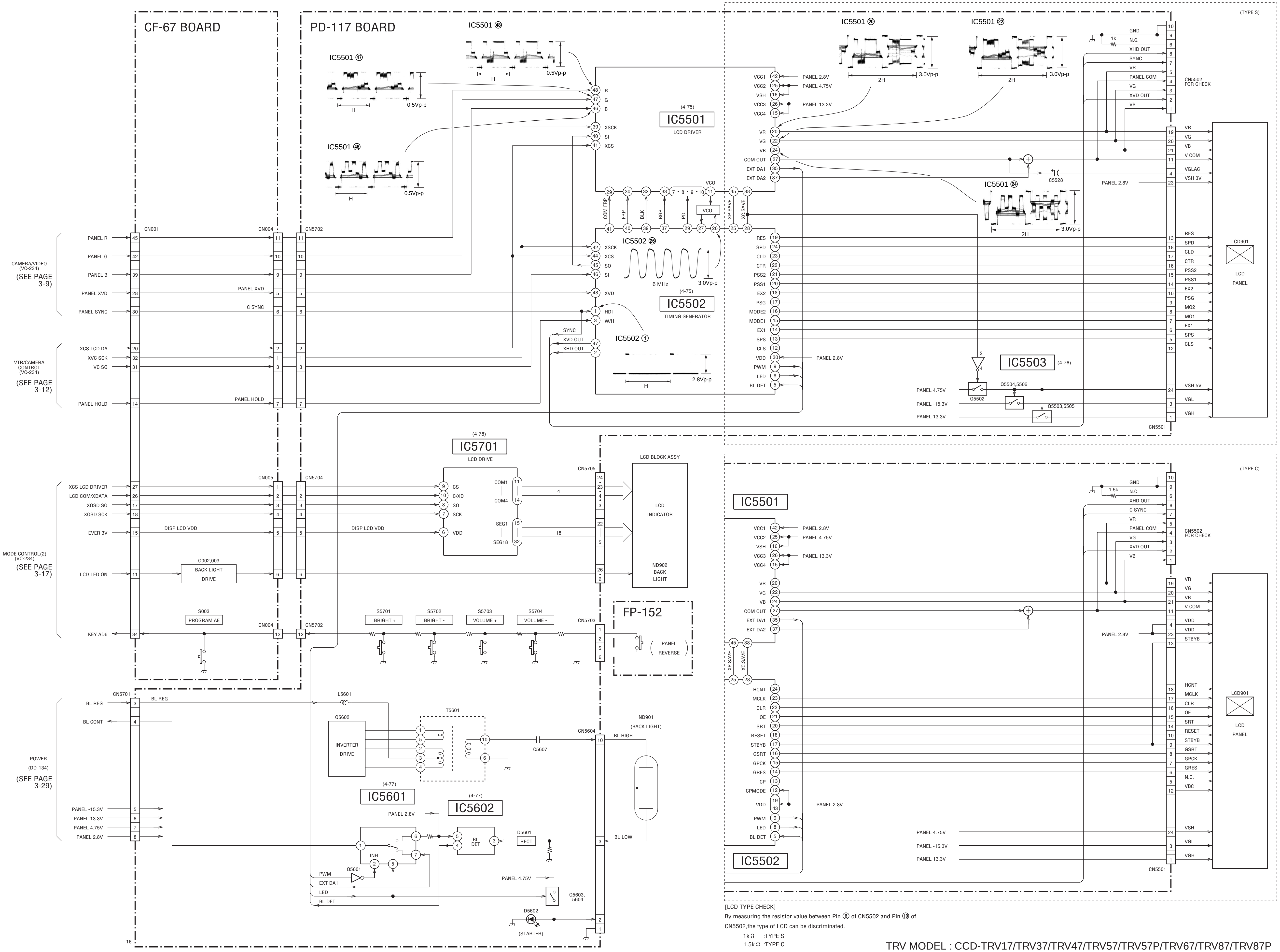
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


MA-374 BOARD
(TR MODEL)
MA-375 BOARD
(TRV MODEL)
POWER (VC-234)
(SEE PAGE 3-30)
VTR UNREG
AU 2.8V
A 4.75V
F301
D301,302
Q302 — Q304
D302,303
Q301,302,304
LED DRIVE
LED DRIVE
(LASER LINK MODEL)
(EXCEPT LASER LINK MODEL)
IR DRV CL
IR DRV EN
MIC L
MIC R
AUDIO(1) (VC-234)
(SEE PAGE 3-20)
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
IC321
(4-68)
MIC AMP
(STEREO MODEL)
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
BUFFER
MIX
13dB AMP
INT/EXT
MIC901
INT MIC L
MIC L
CN301
J321
MIC (PLUG IN POWER)
MIC902
INT MIC R
MIC R
CN302
(MONAURAL MODEL)
IC322
(4-68)
Q321,322
LOW-CUT FILTER
MIC AMP
(REMOTE COMMANDER MODEL)
(4-70)
IC301
REMOTE COMMANDER RECEIVER
D305
XSIRCS SIG
XF TALLY
D304 (TALLY)
MODE CONTROL(2) (VC-234)
(SEE PAGE 3-16,18)
SHOE ID
XCAM MODE SW
XVTR MODE SW
S303
S302
CAMERA
PLAYER OR VTR
POWER
S301
VIDEO LIGHT
ON
AUTO
OFF
(VIDEO LIGHT MODEL)
CN303
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
MONAURAL MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TR317/TR517
REMOTE COMMANDER MODEL : CCD-TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P

3-11. LCD BLOCK DIAGRAM (TRV MODEL)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


CF-67 BOARD
PD-117 BOARD
IC5501 ㊽
IC5501 ㊼
IC5501 ㊻
0.5Vp-p
H
IC5501 ⑳
IC5501 ㉒
IC5501 ㉔
3.0Vp-p
2H
(TYPE S)
(TYPE C)
IC5501
(4-75)
LCD DRIVER
IC5502
(4-75)
TIMING GENERATOR
IC5502 ㉖
6 MHz
IC5502 ①
2.8Vp-p
IC5503
(4-76)
IC5701
(4-78)
LCD DRIVE
IC5601
(4-77)
IC5602
(4-77)
FP-152
PANEL REVERSE
LCD BLOCK ASSY
LCD INDICATOR
ND902 BACK LIGHT
ND901 (BACK LIGHT)
BL HIGH
BL LOW
LCD901
LCD PANEL
CN5502 FOR CHECK
CN5501
CN001
CN004
CN005
CN5702
CN5704
CN5705
CN5703
CN5701
CN5704
CN5604
CAMERA/VIDEO (VC-234)
(SEE PAGE 3-9)
VTR/CAMERA CONTROL (VC-234)
(SEE PAGE 3-12)
MODE CONTROL(2) (VC-234)
(SEE PAGE 3-17)
POWER (DD-134)
(SEE PAGE 3-29)
PANEL R
PANEL G
PANEL B
PANEL XVD
PANEL SYNC
C SYNC
XCS LCD DA
XVC SCK
VC SO
PANEL HOLD
XCS LCD DRIVER
LCD COM/XDATA
XOSD SO
XOSD SCK
EVER 3V
DISP LCD VDD
LCD LED ON
Q002,003 BACK LIGHT DRIVE
KEY AD6
S003 PROGRAM AE
S5701 BRIGHT +
S5702 BRIGHT -
S5703 VOLUME +
S5704 VOLUME -
BL REG
BL CONT
PANEL -15.3V
PANEL 13.3V
PANEL 4.75V
PANEL 2.8V
R
G
B
XSCK
SI
XCS
SO
XVD
HDI
W/H
SYNC
XVD OUT
XHD OUT
VCC1
VCC2
VSH
VCC3
VCC4
VR
VG
VB
COM OUT
EXT DA1
EXT DA2
VCO
COM FRP
FRP
BLK
BGP
PD
XP SAVE
XC SAVE
RES
SPD
CLD
CTR
PSS2
PSS1
EX2
PSG
MODE2
MODE1
EX1
SPS
CLS
VDD
PWM
LED
BL DET
GND
N.C.
XHD OUT
VR
PANEL COM
XVD OUT
1k
1.5k
V COM
VGLAC
VSH 3V
VSH 5V
VGL
VGH
C5528
Q5502
Q5504,5506
Q5503,5505
MO2
MO1
HCNT
MCLK
CLR
OE
SRT
RESET
STBYB
GSRT
GPCK
GRES
CP
CPMODE
VBC
VSH
CS
C/XD
SCK
COM1
COM4
SEG1
SEG18
L5601
T5601
Q5602 INVERTER DRIVE
C5607
BL DET
D5601 RECT
INH
Q5601
D5602 (STARTER)
Q5603, 5604
PWM
EXT DA1
LED
BL DET

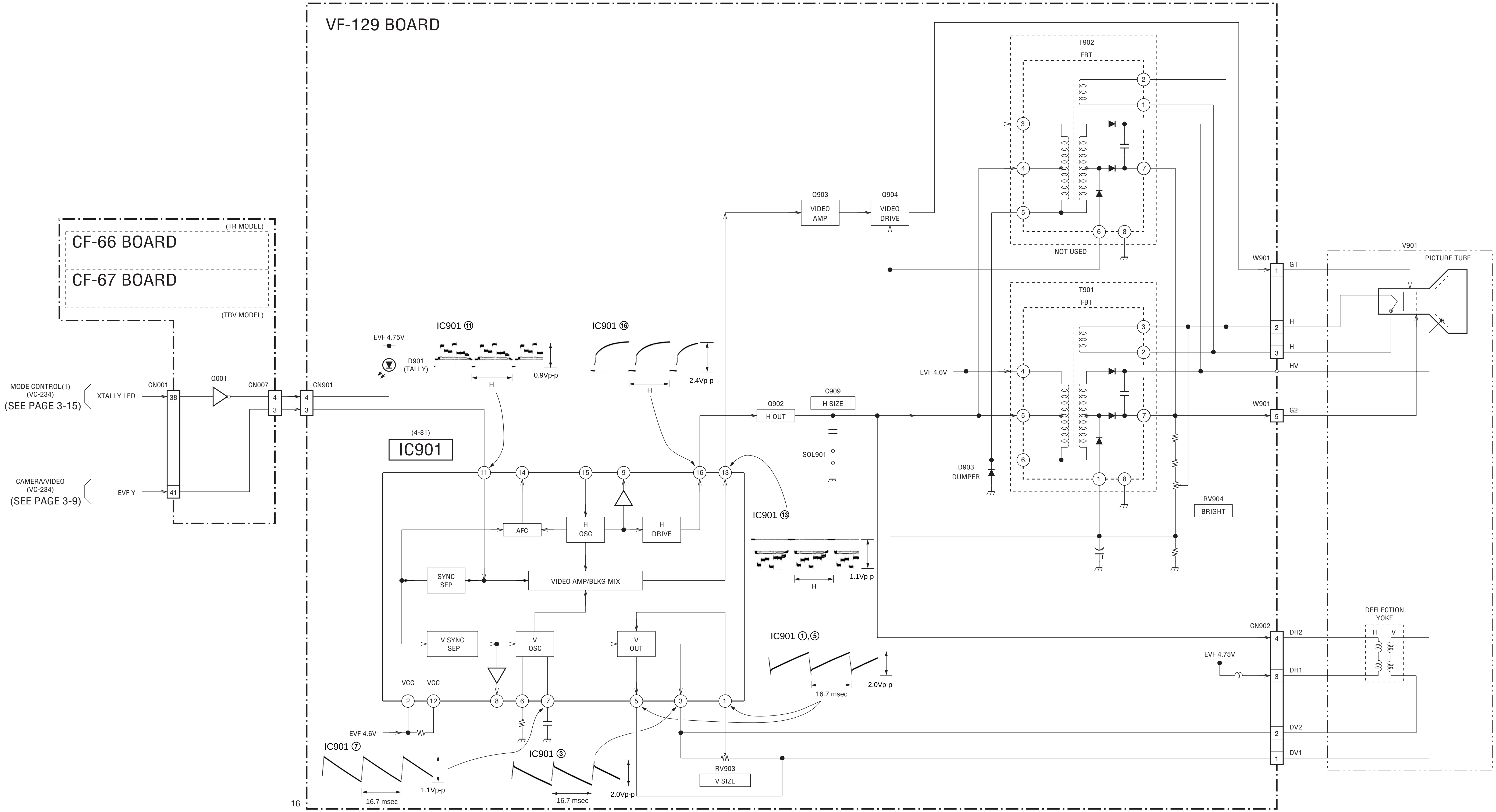
[LCD TYPE CHECK]
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502,the type of LCD can be discriminated.

1kΩ :TYPE S
1.5kΩ :TYPE C

TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P

3-12. B/W EVF BLOCK DIAGRAM

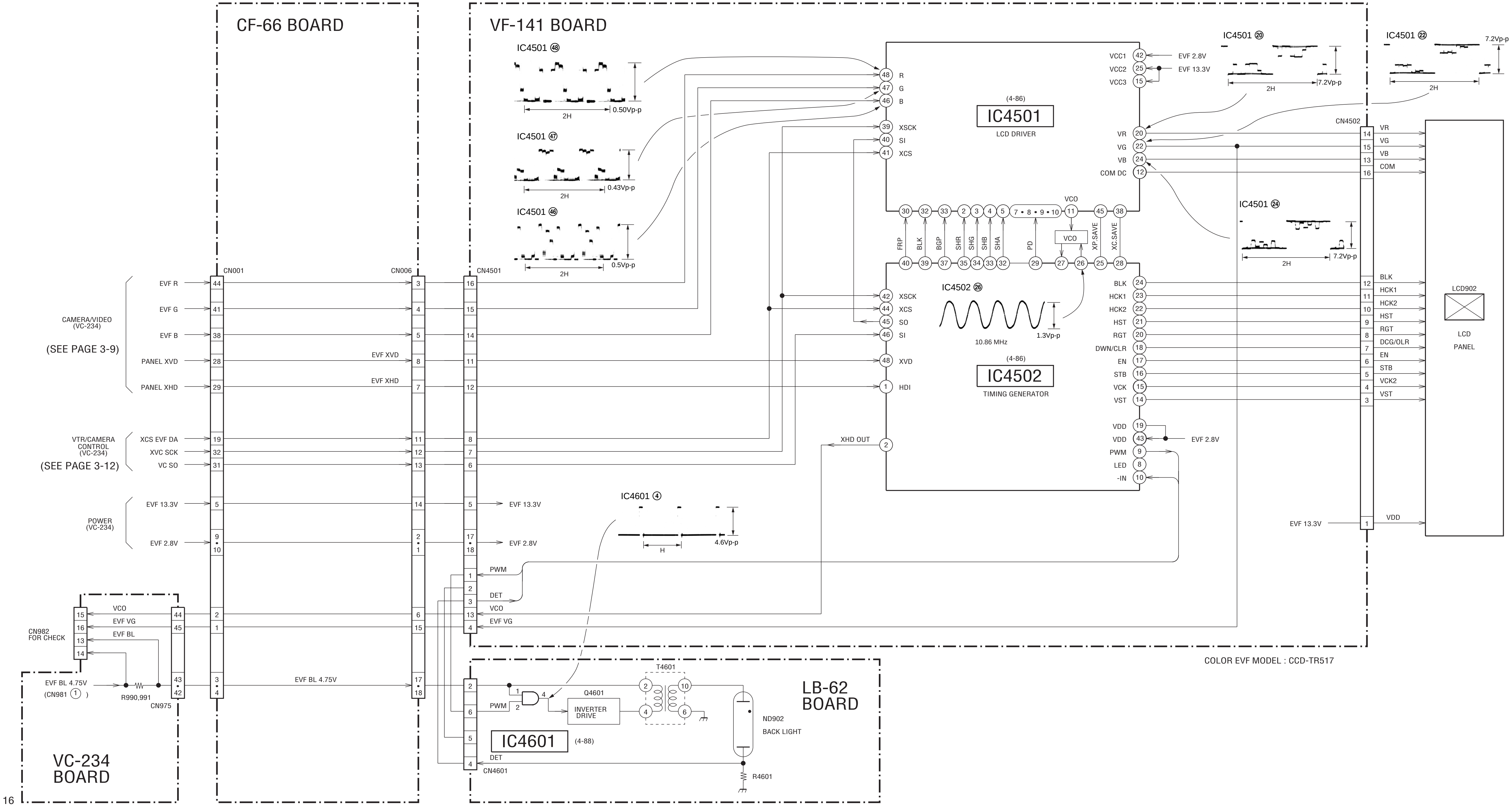
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VF-129 BOARD
CF-66 BOARD
(TR MODEL)
CF-67 BOARD
(TRV MODEL)
MODE CONTROL(1)
(VC-234)
(SEE PAGE 3-15)
XTALLY LED
CAMERA/VIDEO
(VC-234)
(SEE PAGE 3-9)
EVF Y
CN001
38
41
Q001
CN007
4
3
CN901
4
3
EVF 4.75V
D901
(TALLY)
IC901 ⑪
0.9Vp-p
H
IC901 ⑯
2.4Vp-p
H
(4-81)
IC901
11
14
15
9
16
13
AFC
H
OSC
H
DRIVE
SYNC
SEP
VIDEO AMP/BLKG MIX
V SYNC
SEP
V
OSC
V
OUT
VCC
VCC
2
12
8
6
7
5
3
1
EVF 4.6V
IC901 ⑦
1.1Vp-p
16.7 msec
IC901 ③
2.0Vp-p
16.7 msec
RV903
V SIZE
16
IC901 ⑬
1.1Vp-p
H
IC901 ①,⑤
16.7 msec
2.0Vp-p
Q902
H OUT
C909
H SIZE
SOL901
Q903
VIDEO
AMP
Q904
VIDEO
DRIVE
T902
FBT
NOT USED
T901
FBT
EVF 4.6V
D903
DUMPER
RV904
BRIGHT
W901
G1
H
H
HV
W901
G2
V901
PICTURE TUBE
CN902
DH2
DH1
DV2
DV1
EVF 4.75V
DEFLECTION
YOKE
H
V

TR MODEL : CCD-TR317
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P

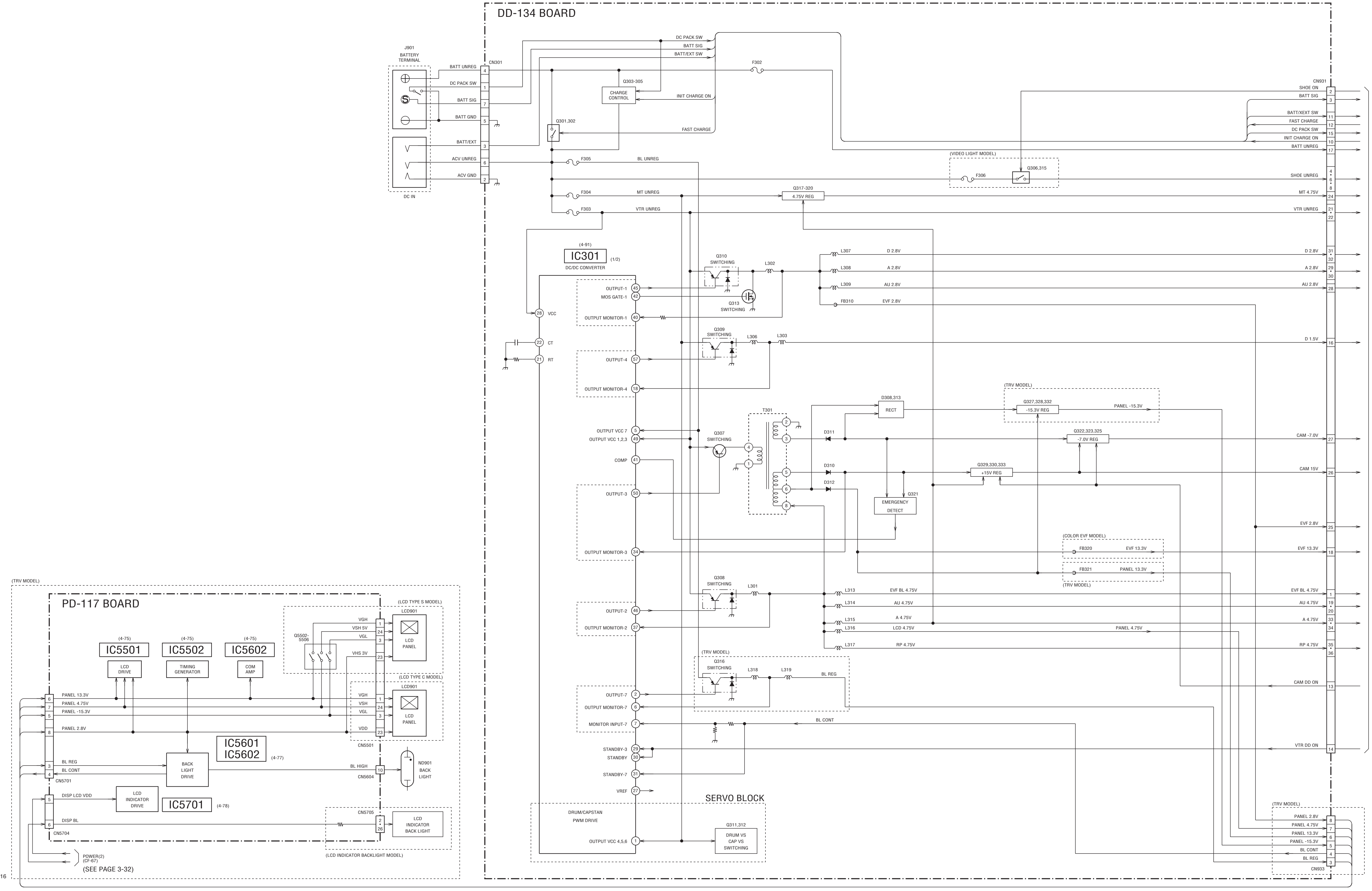
3-13. COLOR EVF BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


CF-66 BOARD
VF-141 BOARD
LB-62 BOARD
VC-234 BOARD
IC4501 ㊽
0.50Vp-p
2H
IC4501 ㊼
0.43Vp-p
IC4501 ㊻
0.5Vp-p
IC4501 ⑳
IC4501 ㉒
7.2Vp-p
IC4501 ㉔
IC4502 ㉖
1.3Vp-p
10.86 MHz
IC4601 ④
4.6Vp-p
H
IC4501
LCD DRIVER
(4-86)
IC4502
TIMING GENERATOR
IC4601
(4-88)
VCC1
VCC2
VCC3
EVF 2.8V
EVF 13.3V
R
G
B
XSCK
SI
XCS
VR
VG
VB
COM DC
FRP
BLK
BGP
SHR
SHG
SHB
SHA
PD
VCO
XP.SAVE
XC.SAVE
SO
XVD
HDI
HCK1
HCK2
HST
RGT
DWN/CLR
EN
STB
VCK
VST
VDD
PWM
LED
-IN
XHD OUT
CN001
CN006
CN4501
CN4502
COM
DCG/OLR
VCK2
LCD902
LCD PANEL
EVF R
EVF G
EVF B
PANEL XVD
PANEL XHD
EVF XVD
EVF XHD
CAMERA/VIDEO (VC-234)
(SEE PAGE 3-9)
VTR/CAMERA CONTROL (VC-234)
(SEE PAGE 3-12)
XCS EVF DA
XVC SCK
VC SO
POWER (VC-234)
EVF VG
EVF BL
CN982 FOR CHECK
EVF BL 4.75V
(CN981 ①)
R990,991
CN975
DET
Q4601
INVERTER DRIVE
T4601
ND902
BACK LIGHT
R4601
CN4601
COLOR EVF MODEL : CCD-TR517
16

3-14. POWER BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


DD-134 BOARD
J901
BATTERY TERMINAL
DC IN
CN301
BATT UNREG
DC PACK SW
BATT SIG
BATT GND
BATT/EXT
ACV UNREG
ACV GND
DC PACK SW
BATT SIG
BATT/EXT SW
F302
Q303-305
CHARGE CONTROL
INIT CHARGE ON
Q301,302
FAST CHARGE
F305
BL UNREG
F304
MT UNREG
F303
VTR UNREG
Q317-320
4.75V REG
(VIDEO LIGHT MODEL)
F306
Q306,315
CN931
SHOE ON
BATT SIG
BATT/XEXT SW
FAST CHARGE
DC PACK SW
INIT CHARGE ON
BATT UNREG
SHOE UNREG
MT 4.75V
VTR UNREG
(4-91)
IC301
(1/2)
DC/DC CONVERTER
Q310
SWITCHING
L302
Q313
SWITCHING
OUTPUT-1
MOS GATE-1
OUTPUT MONITOR-1
VCC
CT
RT
L307
D 2.8V
L308
A 2.8V
L309
AU 2.8V
FB310
EVF 2.8V
D 2.8V
A 2.8V
AU 2.8V
Q309
SWITCHING
L306
L303
D 1.5V
OUTPUT-4
OUTPUT MONITOR-4
(TRV MODEL)
Q327,328,332
-15.3V REG
PANEL -15.3V
D308,313
RECT
T301
OUTPUT VCC 7
OUTPUT VCC 1,2,3
Q307
SWITCHING
D311
Q322,323,325
-7.0V REG
CAM -7.0V
COMP
D310
D312
Q329,330,333
+15V REG
CAM 15V
OUTPUT-3
EMERGENCY DETECT
Q321
POWER(2)
(VC-234)
(SEE PAGE 3-31)
EVF 2.8V
(COLOR EVF MODEL)
FB320
EVF 13.3V
FB321
PANEL 13.3V
(TRV MODEL)
EVF 13.3V
OUTPUT MONITOR-3
Q308
SWITCHING
L301
L313
EVF BL 4.75V
L314
AU 4.75V
L315
A 4.75V
L316
LCD 4.75V
PANEL 4.75V
L317
RP 4.75V
EVF BL 4.75V
AU 4.75V
A 4.75V
RP 4.75V
OUTPUT-2
OUTPUT MONITOR-2
(TRV MODEL)
Q316
SWITCHING
L318
L319
BL REG
CAM DD ON
OUTPUT-7
OUTPUT MONITOR-7
MONITOR INPUT-7
BL CONT
STANDBY-3
STANDBY
STANDBY-7
VREF
VTR DD ON
SERVO BLOCK
DRUM/CAPSTAN
PWM DRIVE
OUTPUT VCC 4,5,6
Q311,312
DRUM VS
CAP VS
SWITCHING
(TRV MODEL)
PANEL 2.8V
PANEL 4.75V
PANEL 13.3V
PANEL -15.3V
BL CONT
BL REG
CN933
(TRV MODEL)
PD-117 BOARD
(LCD TYPE S MODEL)
LCD901
(4-75)
IC5501
LCD DRIVE
(4-75)
IC5502
TIMING GENERATOR
(4-75)
IC5602
COM AMP
Q5502-5506
VGH
VSH 5V
VGL
VHS 3V
LCD PANEL
(LCD TYPE C MODEL)
LCD901
VGH
VSH
VGL
VDD
LCD PANEL
CN5501
PANEL 13.3V
PANEL 4.75V
PANEL -15.3V
PANEL 2.8V
IC5601
IC5602
(4-77)
BL REG
BL CONT
BACK LIGHT DRIVE
BL HIGH
CN5604
ND901
BACK LIGHT
CN5701
DISP LCD VDD
LCD INDICATOR DRIVE
IC5701
(4-78)
CN5705
DISP BL
CN5704
LCD INDICATOR BACK LIGHT
(LCD INDICATOR BACKLIGHT MODEL)
POWER(2)
(CF-67)
(SEE PAGE 3-32)
16

[LCD TYPE CHECK]

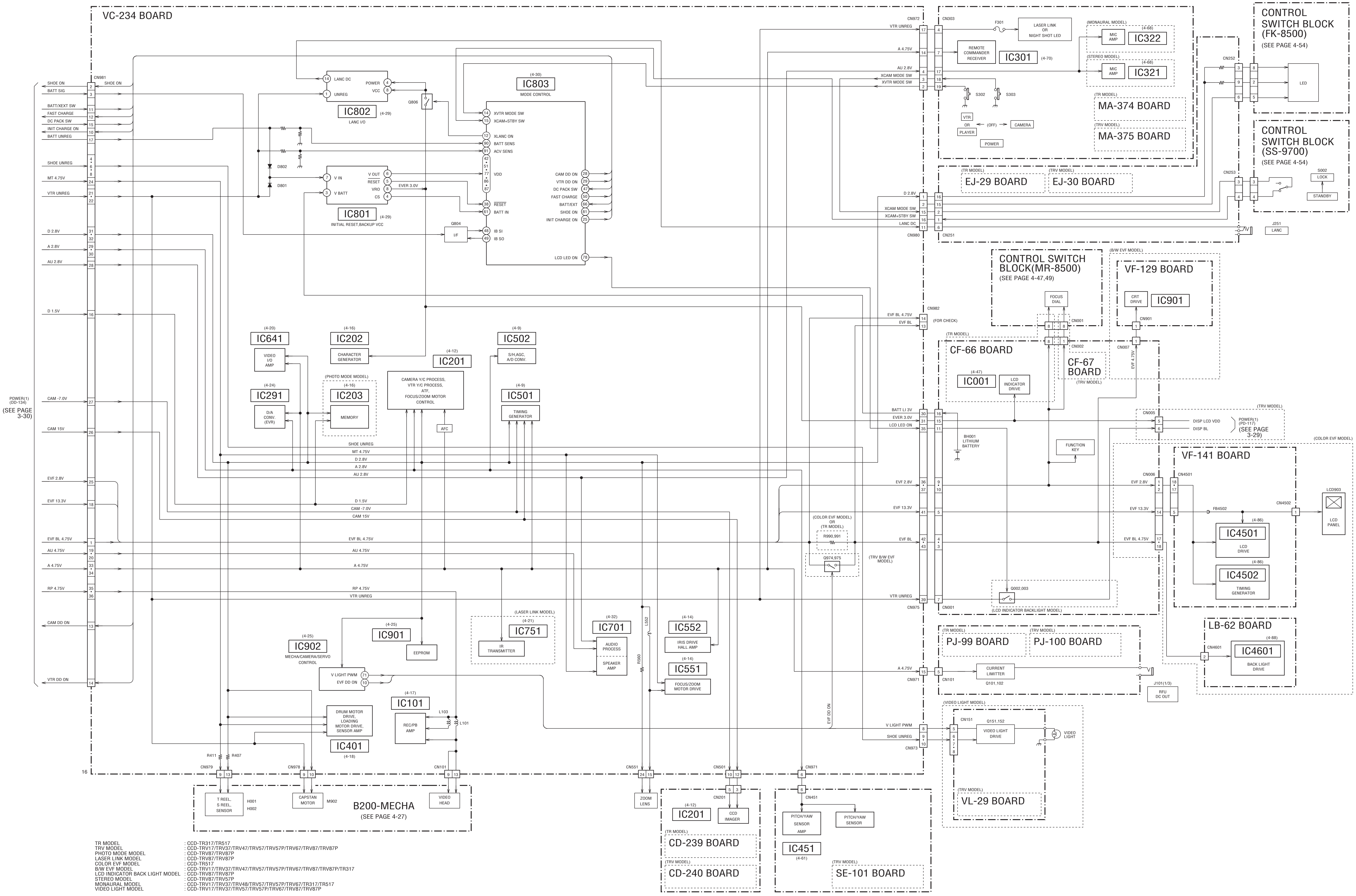
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502,the type of LCD can be discriminated.

1kΩ :TYPE S
1.5kΩ :TYPE C

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LCD TYPE S MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LCD TYPE C MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LCD INDICATOR BACK LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517

3-15. POWER BLOCK DIAGRAM (2/2)

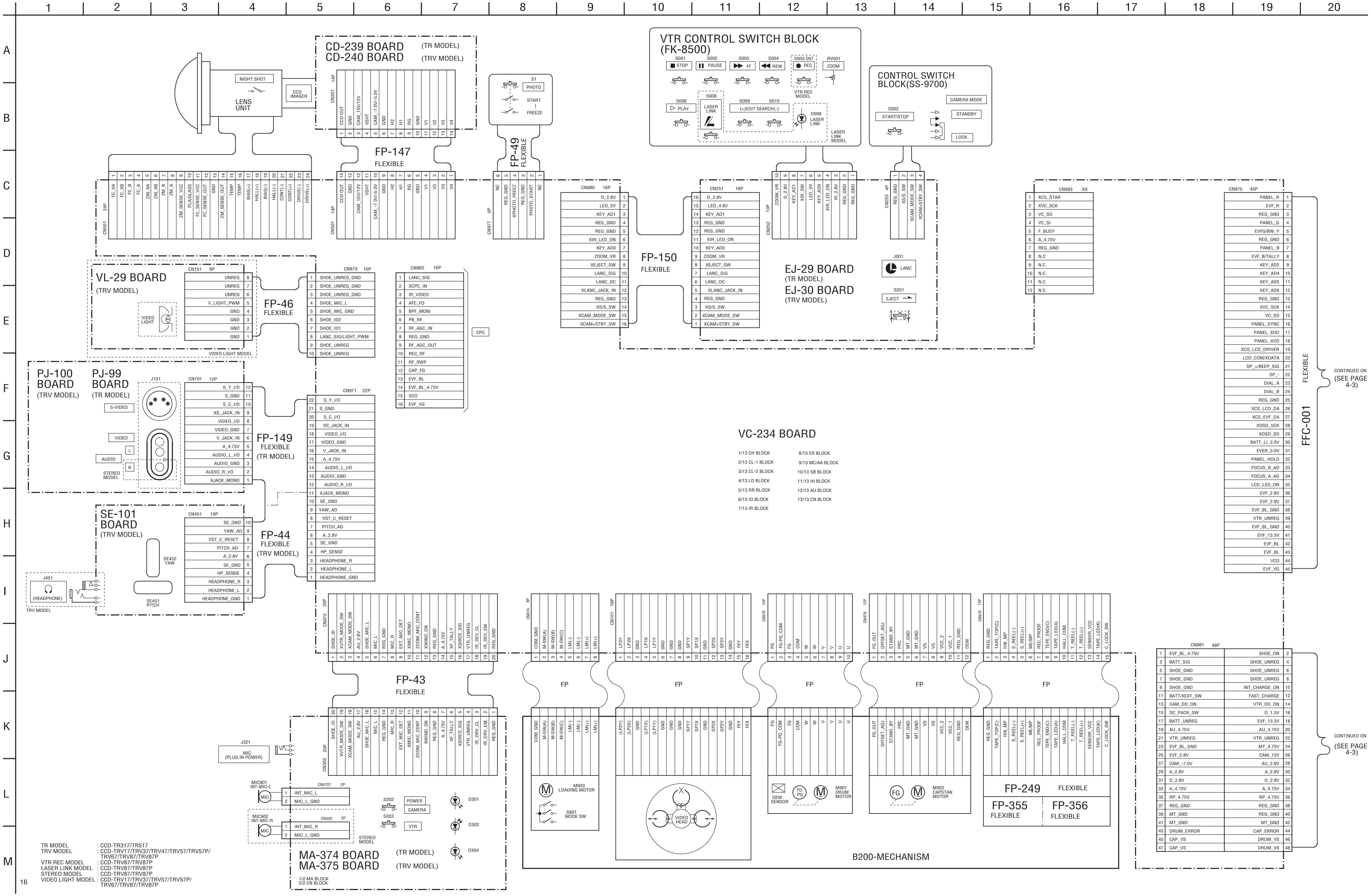
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
CN981
SHOE ON
BATT SIG
BATT/XEXT SW
FAST CHARGE
DC PACK SW
INIT CHARGE ON
BATT UNREG
SHOE UNREG
MT 4.75V
VTR UNREG
D 2.8V
A 2.8V
AU 2.8V
D 1.5V
POWER(1)
(DD-134)
(SEE PAGE 3-30)
CAM -7.0V
CAM 15V
EVF 2.8V
EVF 13.3V
EVF BL 4.75V
AU 4.75V
A 4.75V
RP 4.75V
CAM DD ON
VTR DD ON
IC802
LANC I/O
(4-29)
LANC DC
UNREG
POWER
VCC
Q806
D802
D801
IC801
INITIAL RESET,BACKUP VCC
(4-29)
V IN
V BATT
V OUT
RESET
VRO
CS
EVER 3.0V
Q804
I/F
IC803
(4-30)
MODE CONTROL
XVTR MODE SW
XCAM+STBY SW
XLANC ON
BATT SENS
ACV SENS
VDD
RESET
BATT IN
IB SI
IB SO
CAM DD ON
VTR DD ON
DC PACK SW
FAST CHARGE
BATT/EXT
SHOE ON
INIT CHARGE ON
LCD LED ON
IC641
(4-20)
VIDEO I/O AMP
IC202
(4-16)
CHARACTER GENERATOR
IC502
(4-9)
S/H,AGC, A/D CONV.
IC201
(4-12)
CAMERA Y/C PROCESS, VTR Y/C PROCESS, ATF, FOCUS/ZOOM MOTOR CONTROL
AFC
IC291
(4-24)
D/A CONV. (EVR)
IC203
(PHOTO MODE MODEL)
(4-16)
MEMORY
IC501
(4-9)
TIMING GENERATOR
IC902
(4-25)
MECHA/CAMERA/SERVO CONTROL
V LIGHT PWM
EVF DD ON
IC901
(4-25)
EEPROM
IC751
(LASER LINK MODEL)
(4-21)
IR TRANSMITTER
IC701
(4-32)
AUDIO PROCESS
SPEAKER AMP
IC552
(4-14)
IRIS DRIVE HALL AMP
IC551
(4-14)
FOCUS/ZOOM MOTOR DRIVE
L552
R560
IC101
(4-17)
REC/PB AMP
L103
L101
IC401
(4-18)
DRUM MOTOR DRIVE, LOADING MOTOR DRIVE, SENSOR AMP
R411
R407
CN979
CN978
CN101
CN551
CN501
CN971
B200-MECHA
(SEE PAGE 4-27)
T REEL, S REEL, SENSOR
H001
H002
CAPSTAN MOTOR
M902
VIDEO HEAD
ZOOM LENS
CN201
IC201
(4-12)
CCD IMAGER
(TR MODEL)
CD-239 BOARD
(TRV MODEL)
CD-240 BOARD
CN451
PITCH/YAW SENSOR AMP
PITCH/YAW SENSOR
IC451
(4-61)
(TRV MODEL)
SE-101 BOARD
CN972
CN303
F301
LASER LINK OR NIGHT SHOT LED
REMOTE COMMANDER RECEIVER
IC301
(4-70)
(MONAURAL MODEL)
MIC AMP
IC322
(4-68)
(STEREO MODEL)
MIC AMP
IC321
(4-68)
VTR UNREG
A 4.75V
AU 2.8V
XCAM MODE SW
XVTR MODE SW
S302
S303
VTR OR PLAYER
(OFF)
CAMERA
POWER
(TR MODEL)
MA-374 BOARD
(TRV MODEL)
MA-375 BOARD
CONTROL SWITCH BLOCK (FK-8500)
(SEE PAGE 4-54)
CN252
LED
CONTROL SWITCH BLOCK (SS-9700)
(SEE PAGE 4-54)
S002
LOCK
STANDBY
CN253
(TR MODEL)
EJ-29 BOARD
(TRV MODEL)
EJ-30 BOARD
D 2.8V
XCAM MODE SW
XCAM+STBY SW
LANC DC
CN980
CN251
J251
LANC
CONTROL SWITCH BLOCK(MR-8500)
(SEE PAGE 4-47,49)
FOCUS DIAL
CN001
(B/W EVF MODEL)
VF-129 BOARD
CRT DRIVE
IC901
CN901
CN007
EVF 4.75V
CN982
EVF BL 4.75V
EVF BL
(FOR CHECK)
(TR MODEL)
CF-66 BOARD
CN002
CF-67 BOARD
(TRV MODEL)
IC001
(4-47)
LCD INDICATOR DRIVE
BATT LI 3V
EVER 3.0V
LCD LED ON
BH001 LITHIUM BATTERY
FUNCTION KEY
(TRV MODEL)
CN005
DISP LCD VDD
DISP BL
POWER(1)
(PD-117)
(SEE PAGE 3-29)
(COLOR EVF MODEL)
VF-141 BOARD
CN006
CN4501
EVF 2.8V
EVF 13.3V
EVF BL 4.75V
FB4502
CN4502
LCD903
LCD PANEL
IC4501
(4-86)
LCD DRIVE
IC4502
(4-86)
TIMING GENERATOR
(COLOR EVF MODEL) OR (TR MODEL)
R990,991
Q974,975
(TRV B/W EVF MODEL)
Q002,003
(LCD INDICATOR BACKLIGHT MODEL)
VTR UNREG
CN975
CN001
(TR MODEL)
PJ-99 BOARD
(TRV MODEL)
PJ-100 BOARD
A 4.75V
CN971
CN101
CURRENT LIMITTER
Q101,102
J101(1/3)
RFU DC OUT
LB-62 BOARD
CN4601
IC4601
(4-88)
BACK LIGHT DRIVE
EVF DD ON
(VIDEO LIGHT MODEL)
V LIGHT PWM
SHOE UNREG
CN973
CN151
Q151,152
VIDEO LIGHT DRIVE
VIDEO LIGHT
(TRV MODEL)
VL-29 BOARD

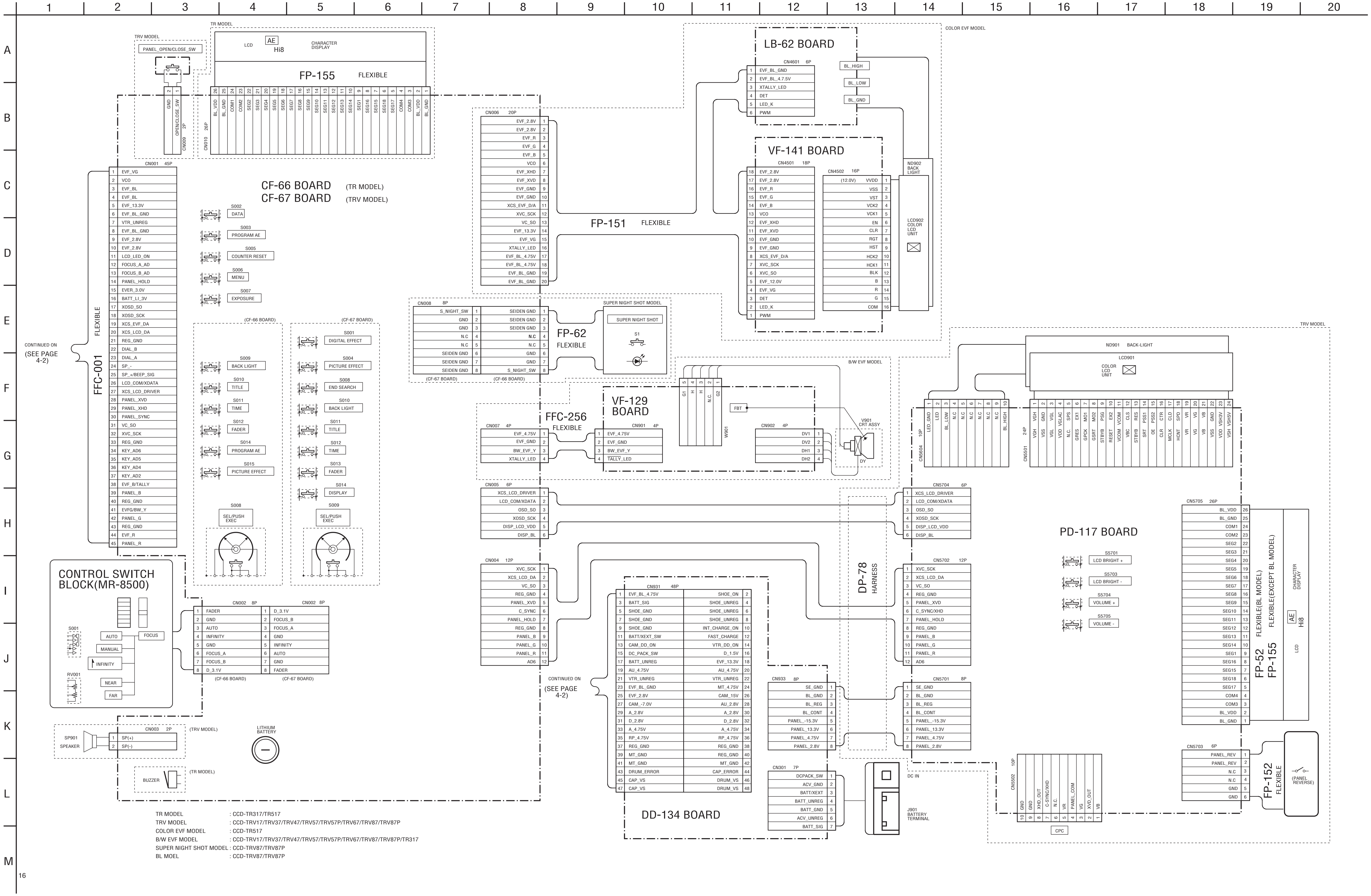
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
PHOTO MODE MODEL : CCD-TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
LCD INDICATOR BACK LIGHT MODEL : CCD-TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV57P
MONAURAL MODEL : CCD-TRV17/TRV37/TRV48/TRV57/TRV57P/TRV67/TR317/TR517
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)


CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
LENS UNIT
NIGHT SHOT
CCD IMAGER
FP-147 FLEXIBLE
FP-49 FLEXIBLE
S1 PHOTO START FREEZE
VTR CONTROL SWITCH BLOCK (FK-8500)
S001 STOP
S002 PAUSE
S003 FF
S004 REW
S005,007 REC
RV001 ZOOM
S006 PLAY
S008 LASER LINK
S009 S010 (+)EDIT SEARCH(-)
VTR REC MODEL
D008 LASER LINK
LASER LINK MODEL
CONTROL SWITCH BLOCK(SS-9700)
S002 START/STOP
CAMERA MODE
STANDBY
LOCK
CN551 24P
CN501 14P
CN977 6P
CN980 16P
CN251 16P
CN252 10P
CN253 4P
CN983 XX
CN975 45P
FP-150 FLEXIBLE
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
J001 LANC
S251 EJECT
VL-29 BOARD (TRV MODEL)
VIDEO LIGHT
VIDEO LIGHT MODEL
CN151 8P
FP-46 FLEXIBLE
CN973 10P
CN982 16P
CPC
PJ-100 BOARD (TRV MODEL)
PJ-99 BOARD (TR MODEL)
J101
CN101 12P
S-VIDEO
VIDEO
AUDIO
L
R
STEREO MODEL
FP-149 FLEXIBLE (TR MODEL)
CN971 22P
SE-101 BOARD (TRV MODEL)
CN451 10P
SE452 YAW
SE451 PITCH
FP-44 FLEXIBLE (TRV MODEL)
J451 (HEADPHONE)
TRV MODEL
VC-234 BOARD
1/13 CH BLOCK
2/13 CL-1 BLOCK
3/13 CL-2 BLOCK
4/13 LD BLOCK
5/13 RR BLOCK
6/13 IO BLOCK
7/13 IR BLOCK
8/13 ER BLOCK
9/13 MC/AA BLOCK
10/13 SB BLOCK
11/13 HI BLOCK
12/13 AU BLOCK
13/13 CN BLOCK
FFC-001 FLEXIBLE
CONTINUED ON (SEE PAGE 4-3)
CN972 20P
CN974 8P
CN1011 16P
CN976 10P
CN978 12P
CN979 15P
CN981 48P
FP-43 FLEXIBLE
FP
CN303 20P
J321 MIC (PLUG IN POWER)
MIC901 INT-MIC-L
MIC902 INT-MIC-R
CN5707 2P
CN302 2P
STEREO MODEL
S302 POWER
CAMERA
S303 VTR
D301
D302
D304
MA-374 BOARD (TR MODEL)
MA-375 BOARD (TRV MODEL)
1/2 MA BLOCK
2/2 CN BLOCK
M903 LOADING MOTOR
S901 MODE SW
VIDEO HEAD
DEW SENSOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
FP-249 FLEXIBLE
FP-355 FLEXIBLE
FP-356 FLEXIBLE
B200-MECHANISM
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P
VTR REC MODEL : CCD-TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/ TRV67/TRV87/TRV87P
16

FRAME SCHEMATIC DIAGRAM (2/2)


CF-66 BOARD (TR MODEL)
CF-67 BOARD (TRV MODEL)
FFC-001 FLEXIBLE
CN001 45P
FP-155 FLEXIBLE
LCD
AE
Hi8
CHARACTER DISPLAY
TR MODEL
TRV MODEL
PANEL_OPEN/CLOSE_SW
CN009 2P
CN010 20P
CONTINUED ON (SEE PAGE 4-2)
S002 DATA
S003 PROGRAM AE
S005 COUNTER RESET
S006 MENU
S007 EXPOSURE
(CF-66 BOARD)
(CF-67 BOARD)
S009 BACK LIGHT
S010 TITLE
S011 TIME
S012 FADER
S014 PROGRAM AE
S015 PICTURE EFFECT
S008 SEL/PUSH EXEC
S001 DIGITAL EFFECT
S004 PICTURE EFFECT
S008 END SEARCH
S010 BACK LIGHT
S011 TITLE
S012 TIME
S013 FADER
S014 DISPLAY
S009 SEL/PUSH EXEC
CONTROL SWITCH BLOCK(MR-8500)
S001
AUTO
MANUAL
FOCUS
INFINITY
RV001
NEAR
FAR
CN002 8P
SP901 SPEAKER
CN003 2P
(TRV MODEL)
BUZZER
(TR MODEL)
LITHIUM BATTERY
CN006 20P
FP-151 FLEXIBLE
LB-62 BOARD
CN4601 6P
BL_HIGH
BL_LOW
BL_GND
VF-141 BOARD
CN4501 18P
CN4502 16P
ND902 BACK LIGHT
LCD902 COLOR LCD UNIT
COLOR EVF MODEL
CN008 8P
FP-62 FLEXIBLE
SUPER NIGHT SHOT MODEL
SUPER NIGHT SHOT
S1
B/W EVF MODEL
FFC-256 FLEXIBLE
VF-129 BOARD
CN007 4P
CN901 4P
CN902 4P
W901
FBT
V901 CRT ASSY
DY
CN005 6P
CN004 12P
DD-134 BOARD
CN931 48P
CN933 8P
CN301 7P
CONTINUED ON (SEE PAGE 4-2)
DP-78 HARNESS
J901 BATTERY TERMINAL
DC IN
PD-117 BOARD
TRV MODEL
ND901 BACK-LIGHT
LCD901 COLOR LCD UNIT
CN5604 10P
CN5501 24P
CN5704 6P
CN5702 12P
CN5701 8P
CN5705 26P
S5701 LCD BRIGHT +
S5703 LCD BRIGHT -
S5704 VOLUME +
S5705 VOLUME -
FP-52 FLEXIBLE(BL MODEL)
FP-155 FLEXIBLE(EXCEPT BL MODEL)
CN5703 6P
FP-152 FLEXIBLE
(PANEL REVERSE)
CN5502 10P
CPC

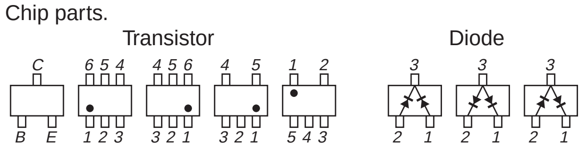
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
SUPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P
BL MOEL : CCD-TRV87/TRV87P

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- ░░░░: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



- Model
  TR model:CCD-TR317/TR517
  TRV model: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
  TRV67/TRV87/TRV87P

(For schematic diagrams)

- All capacitors are in mF unless otherwise noted. pF : m mF. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
  kW=1000W, MW=1000kW.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 L452
22U 10UH
TA A 2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- ▭ : non flammable resistor
- ∿ : fusible resistor
- ▭ : panel designation
- ▬▬ : B+ Line *
- ▬ ▬ ▬ : B– Line *
- ⇨ : IN/OUT direction of (+,–) B LINE. *
- ▭ : adjustment for repair. *
- Circled numbers refer to waveforms. *

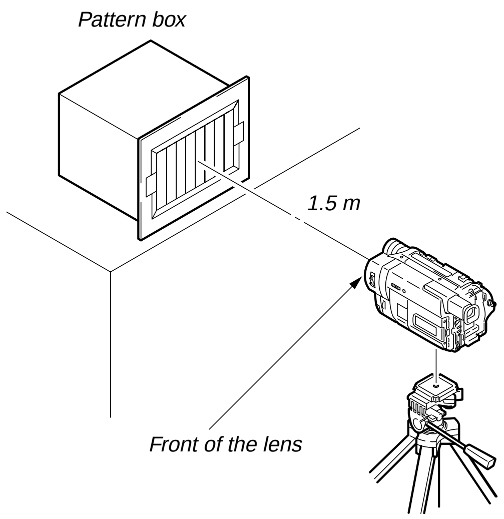
* Indicated by the color red.

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.) *

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

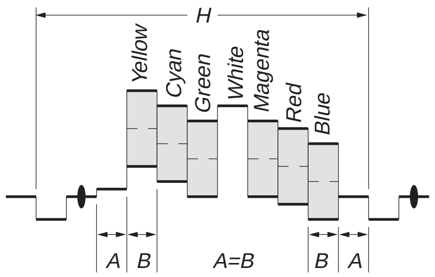


Fig. a (Video output terminal output waveform)

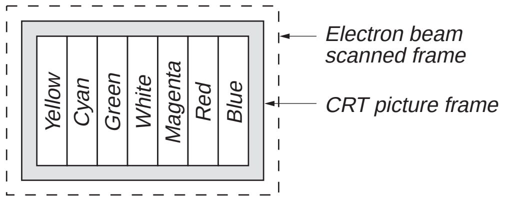
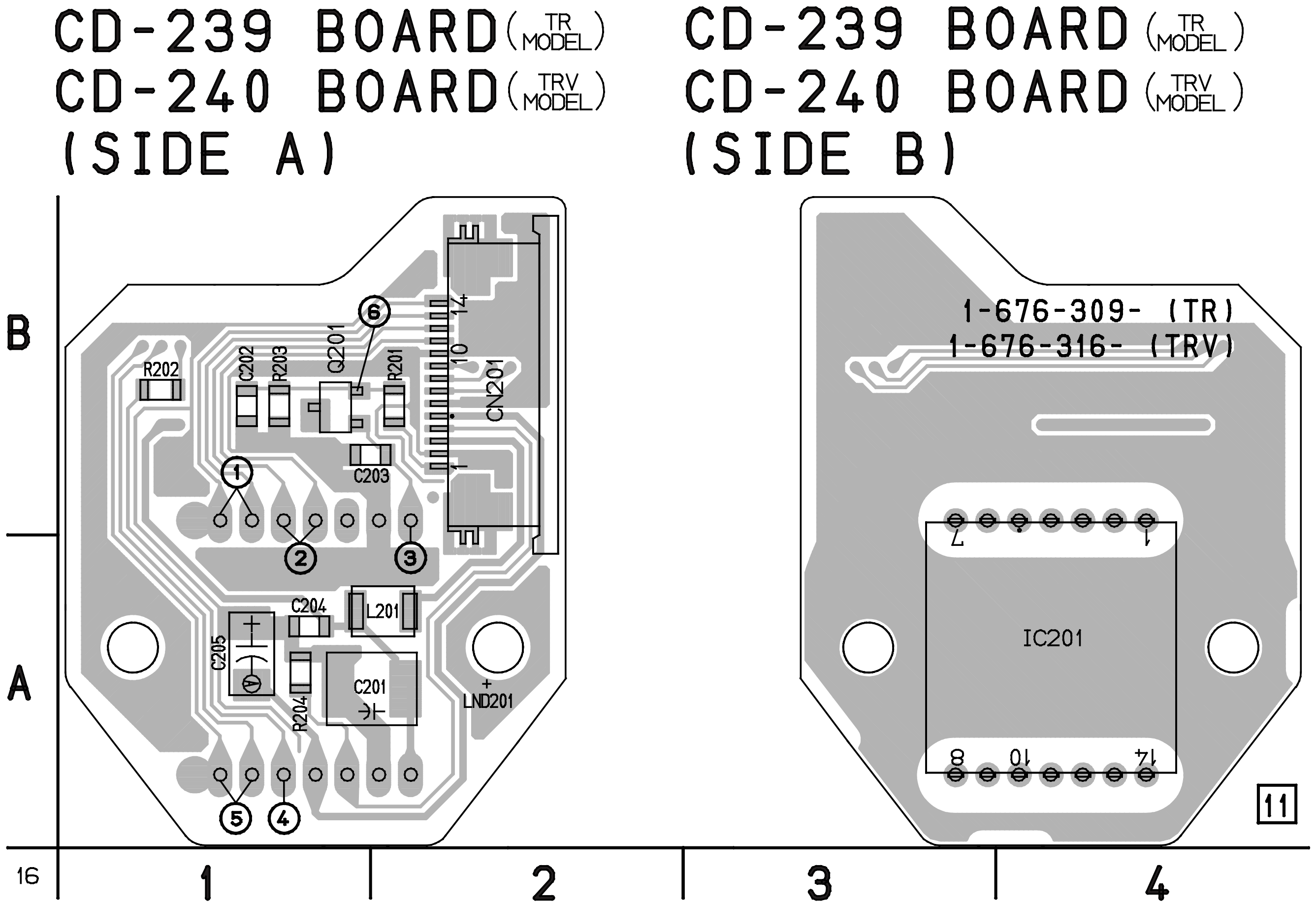


Fig.b (Picture on monitor TV)

When indicating parts by reference number, pleas include the board name.

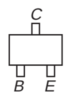
CD-239/240 (CCD IMAGER) PRINTED WIRING BOARD

— Ref. No. CD-239/240 Board; 1,000 Series —

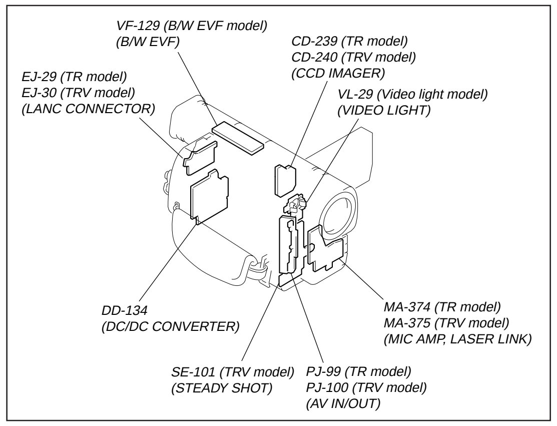

CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
(SIDE A)
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
(SIDE B)
B
A
R202
C202
R203
Q201
R201
14
10
CN201
1
C203
C204
L201
C205
R204
C201
LND201
1-676-309- (TR)
1-676-316- (TRV)
IC201
7
1
8
10
14
11
16
1
2
3
4
①
②
③
④
⑤
⑥

For printed wiring board
- Refer to page 4-98 for location.
- Chip parts

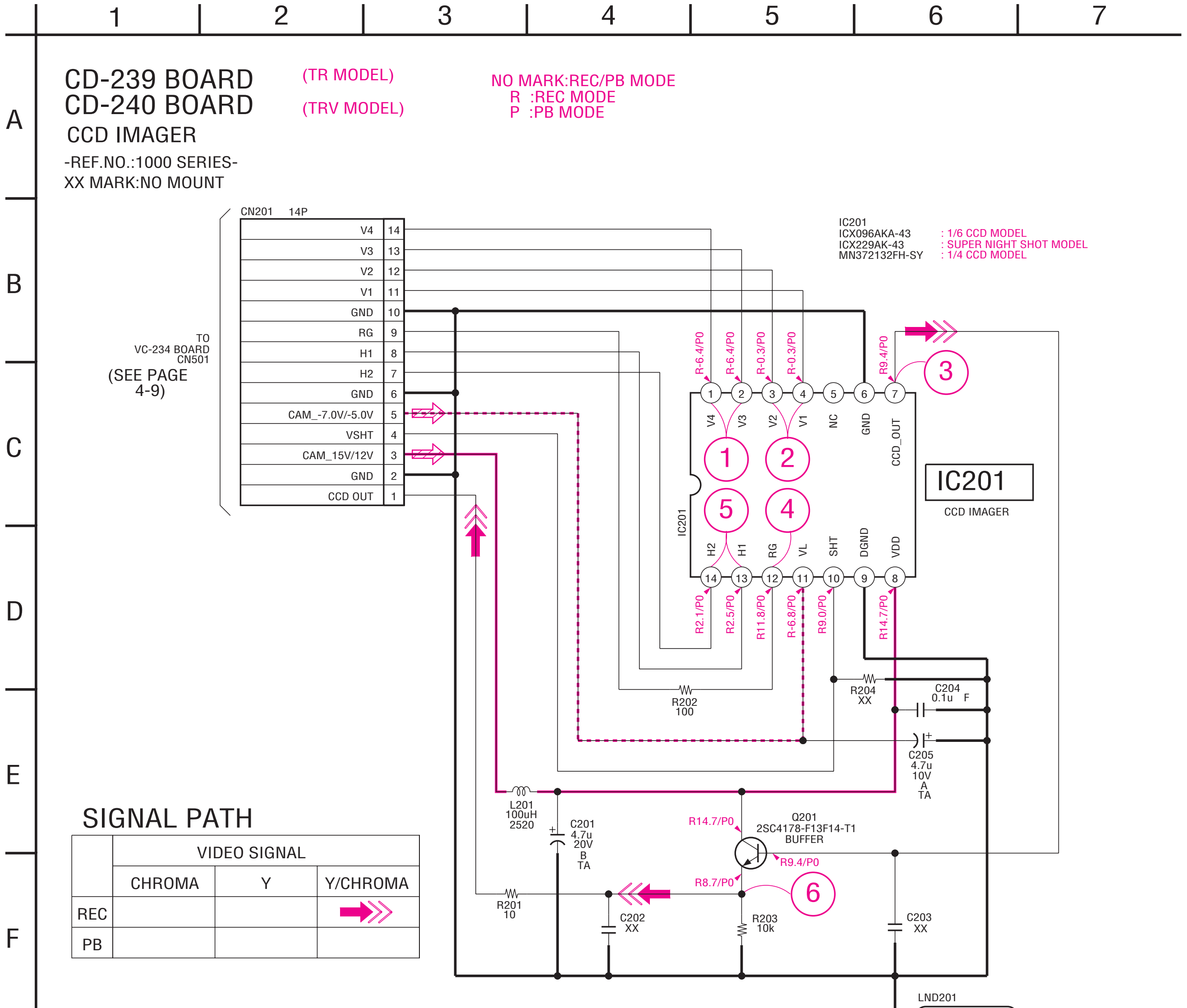
Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For Schematic Diagram
- Refer to page 4-93 for waveforms.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A
B
C
D
E
F
G
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
CCD IMAGER
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
CN201 14P
V4 14
V3 13
V2 12
V1 11
GND 10
RG 9
H1 8
H2 7
GND 6
CAM_-7.0V/-5.0V 5
VSHT 4
CAM_15V/12V 3
GND 2
CCD OUT 1
TO VC-234 BOARD CN501
(SEE PAGE 4-9)
IC201
ICX096AKA-43 : 1/6 CCD MODEL
ICX229AK-43 : SUPER NIGHT SHOT MODEL
MN372132FH-SY : 1/4 CCD MODEL
R-6.4/P0
R-6.4/P0
R-0.3/P0
R-0.3/P0
R9.4/P0
V4
V3
V2
V1
NC
GND
CCD_OUT
H2
H1
RG
VL
SHT
DGND
VDD
R2.1/P0
R2.5/P0
R11.8/P0
R-6.8/P0
R9.0/P0
R14.7/P0
IC201
CCD IMAGER
R202
100
R204
XX
C204
0.1u F
C205
4.7u
10V
A
TA
L201
100uH
2520
C201
4.7u
20V
B
TA
R14.7/P0
Q201
2SC4178-F13F14-T1
BUFFER
R9.4/P0
R8.7/P0
R201
10
C202
XX
R203
10k
C203
XX
LND201
16
①
②
③
④
⑤
⑥

SIGNAL PATH

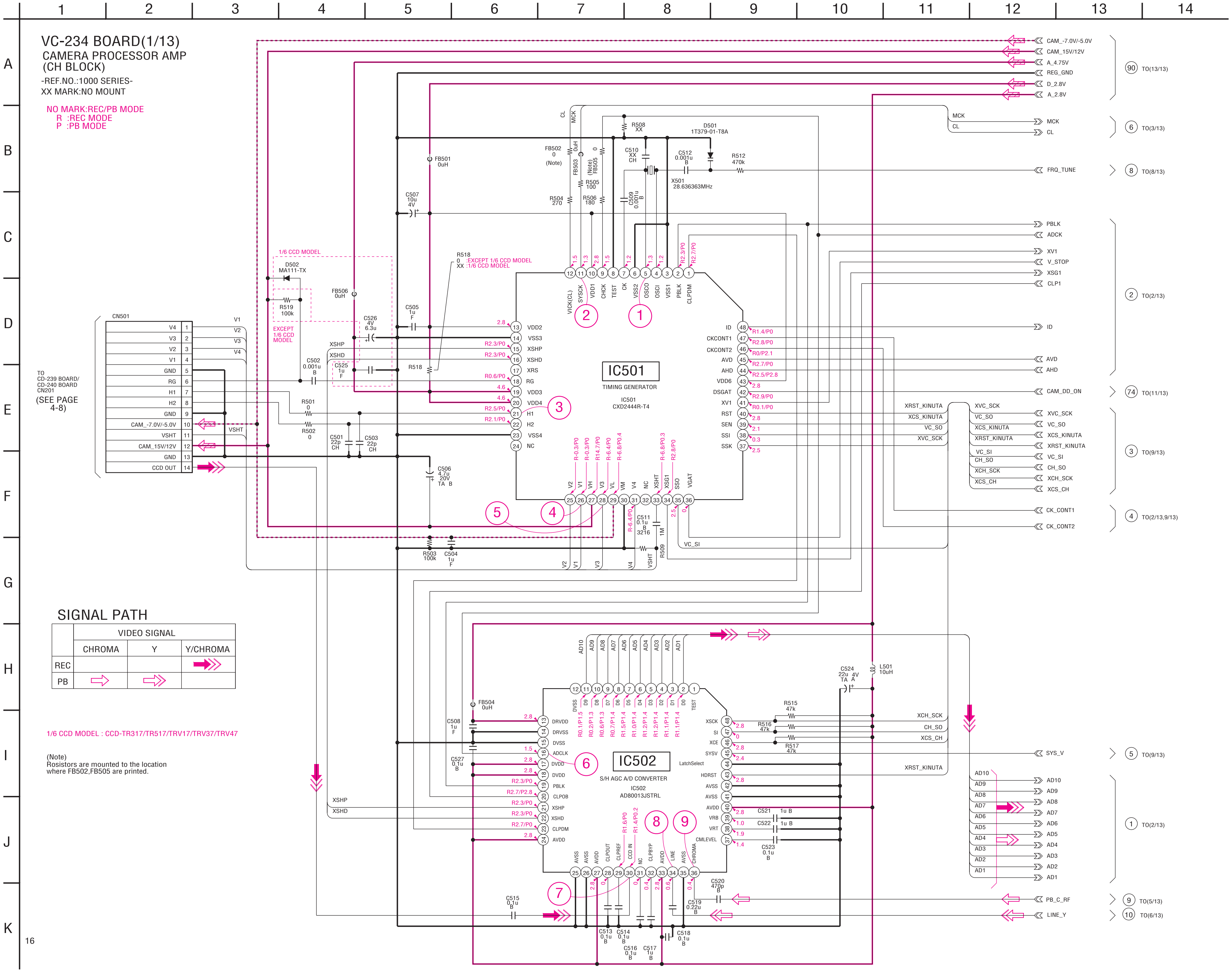
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			⇒
PB			

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
1/6 CCD MODEL : CCD-TRV17/TRV37/TRV47/TR317/TR517
1/4 CCD MODEL : CCD-TRV57/TRV57P/TRV67
SUPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P

Precautions Upon Replacing CCD imager

- The CD-239/240 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

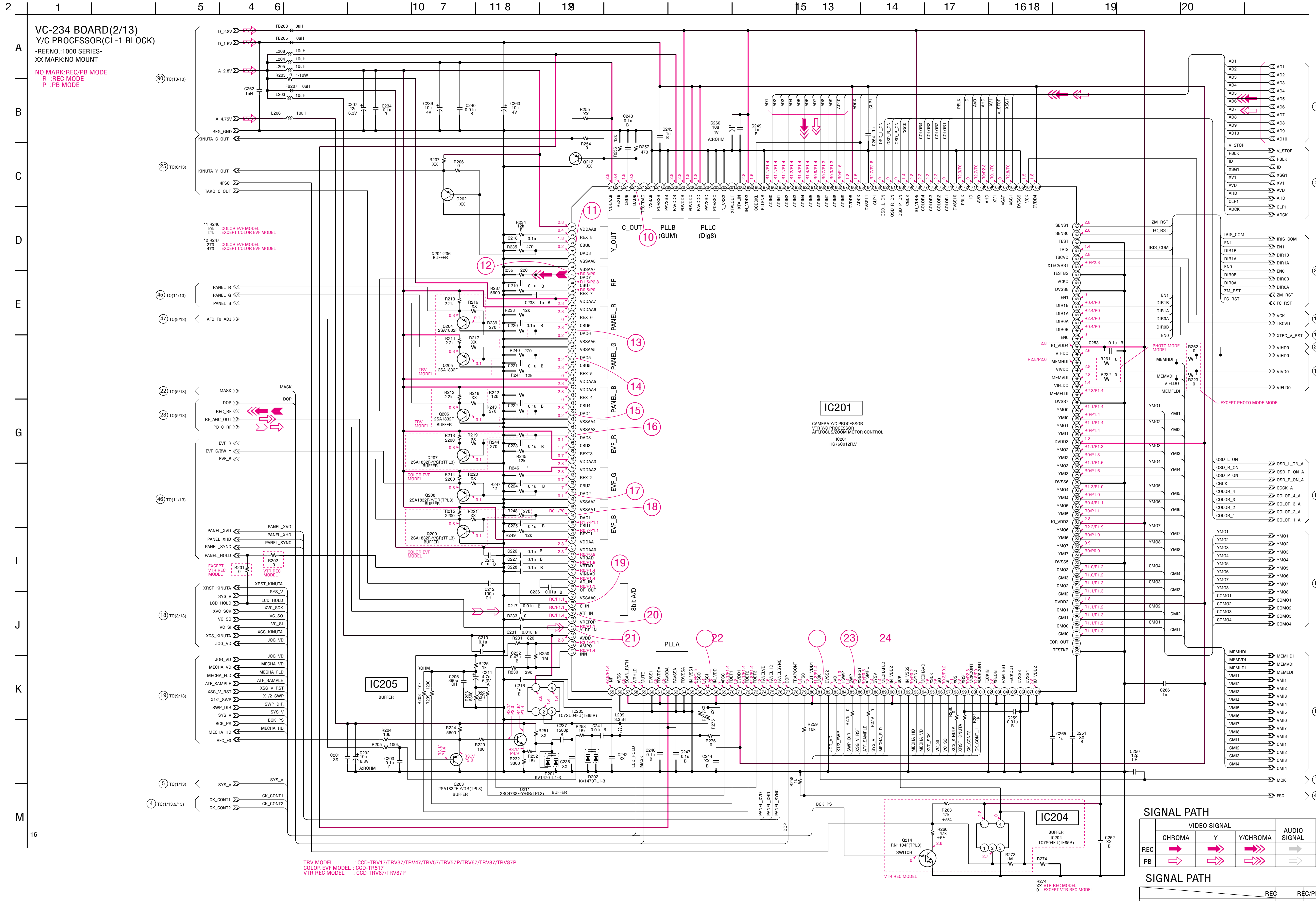
For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-93 for waveforms.


VC-234 BOARD(1/13)
CAMERA PROCESSOR AMP
(CH BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TO CD-239 BOARD/ CD-240 BOARD CN201
(SEE PAGE 4-8)
CN501
V4 V3 V2 V1 GND RG H1 H2 GND CAM_-7.0V/-5.0V VSHT CAM_15V/12V GND CCD OUT
IC501
TIMING GENERATOR
IC501 CXD2444R-T4
IC502
S/H AGC A/D CONVERTER
IC502 AD80013JSTRL
X501 28.636363MHz
D501 1T379-01-T8A
D502 MA111-TX
1/6 CCD MODEL
EXCEPT 1/6 CCD MODEL
R518 0 :EXCEPT 1/6 CCD MODEL XX :1/6 CCD MODEL
CAM_-7.0V/-5.0V
CAM_15V/12V
A_4.75V
REG_GND
D_2.8V
A_2.8V
TO(13/13)
MCK
CL
TO(3/13)
FRQ_TUNE
TO(8/13)
PBLK ADCK XV1 V_STOP XSG1 CLP1 ID AVD AHD
TO(2/13)
CAM_DD_ON
TO(11/13)
XVC_SCK VC_SO XCS_KINUTA XRST_KINUTA VC_SI CH_SO XCH_SCK XCS_CH
TO(9/13)
CK_CONT1 CK_CONT2
TO(2/13,9/13)
SYS_V
TO(9/13)
AD10 AD9 AD8 AD7 AD6 AD5 AD4 AD3 AD2 AD1
TO(2/13)
PB_C_RF
TO(5/13)
LINE_Y
TO(6/13)
SIGNAL PATH
VIDEO SIGNAL
CHROMA Y Y/CHROMA
REC
PB
1/6 CCD MODEL : CCD-TR317/TR517/TRV17/TRV37/TRV47
(Note)
Rosistors are mounted to the location
where FB502,FB505 are printed.
16

CAMERA PROCESSOR
VC-234 (1/13)

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-94 for waveforms.


VC-234 BOARD(2/13)
Y/C PROCESSOR(CL-1 BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC201
CAMERA Y/C PROCESSOR
VTR Y/C PROCESSOR
AFT,FOCUS/ZOOM MOTOR CONTROL
IC201
HG76C012FLV
IC205
BUFFER
IC204
BUFFER
IC204
TC7S04FU(TE85R)
IC205
TC7SU04FU(TE85R)
Q214
RN1104F(TPL3)
SWITCH
VTR REC MODEL
8bit A/D
Y_OUT
RF
PANEL_R
PANEL_G
PANEL_B
EVF_R
EVF_G
EVF_B
C_OUT
PLLB
(GUM)
PLLC
(Dig8)
PLLA
EXCEPT PHOTO MODE MODEL
PHOTO MODE MODEL
TRV MODEL
COLOR EVF MODEL
EXCEPT VTR REC MODEL
D_2.8V
D_1.5V
A_2.8V
A_4.75V
REG_GND
KINUTA_C_OUT
MCK
FSC
TO(3/13)
TO(7/13,12/13)
16

TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517
VTR REC MODEL : CCD-TRV87/TRV87P

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

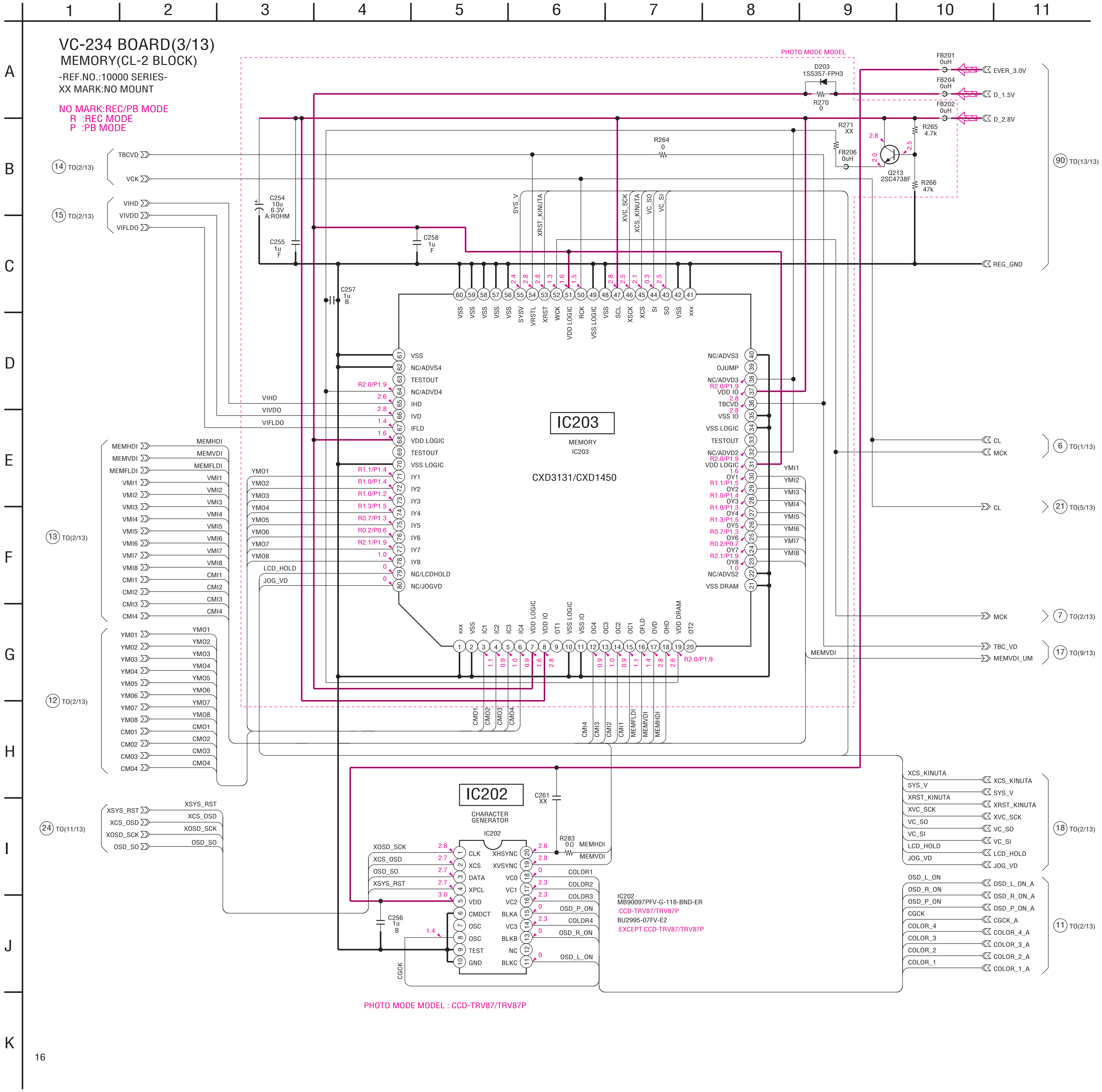
SIGNAL PATH

	REC	REC/PB	PB
Capstan speed servo	➡		⇨

Y/C PROCESSOR
VC-234 (2/13)

For Schematic Diagram

• Refer to page 4-35 for printed wiring board.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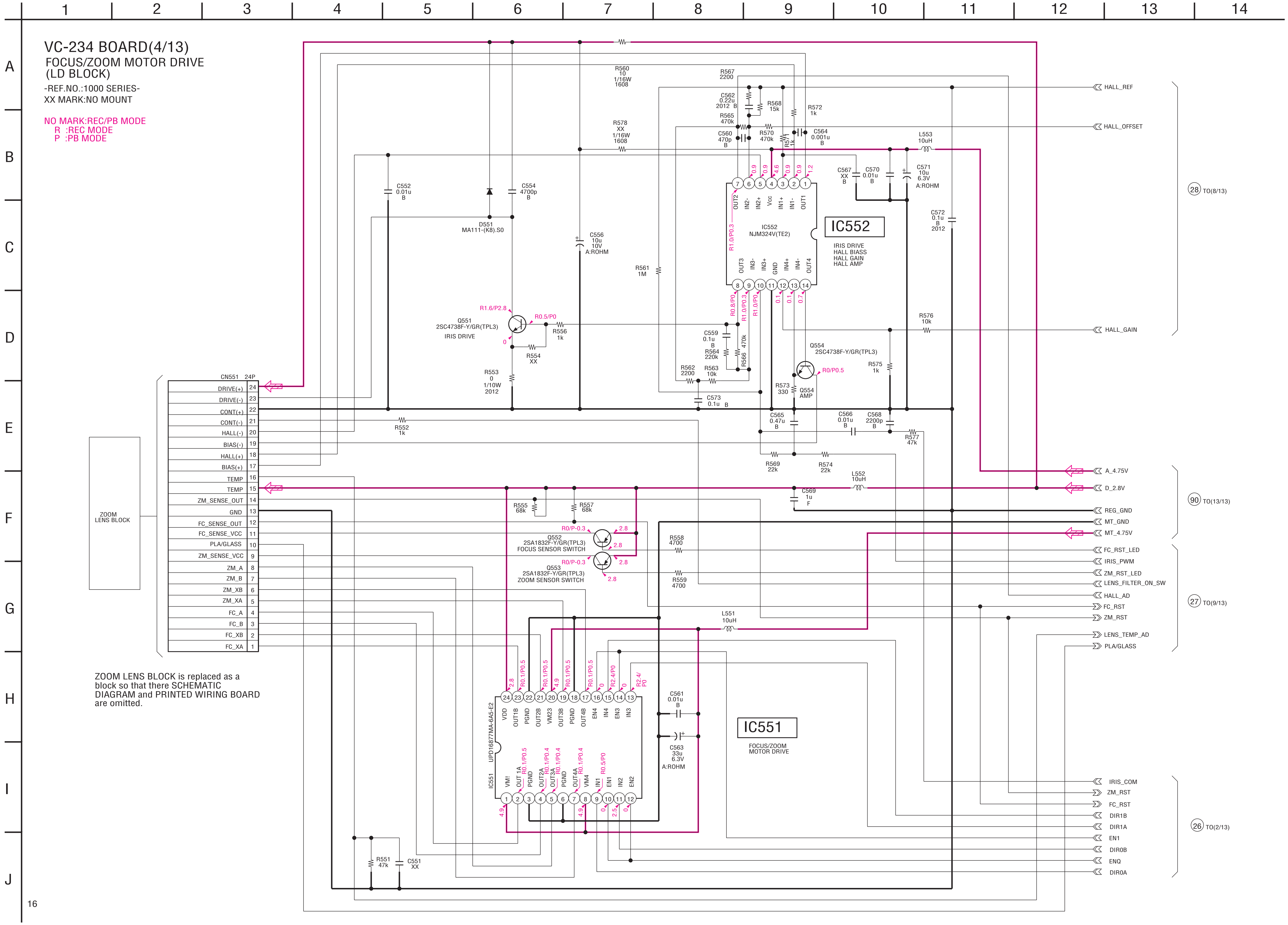
J
K
VC-234 BOARD(3/13)
MEMORY(CL-2 BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
PHOTO MODE MODEL
D203
1SS357-FPH3
R270
0
FB201
0uH
FB204
0uH
FB202
0uH
EVER_3.0V
D_1.5V
D_2.8V
R271
XX
R265
4.7k
R264
0
FB206
0uH
Q213
2SC4738F
R266
47k
REG_GND
(90) TO(13/13)
(14) TO(2/13)
TBCVD
VCK
(15) TO(2/13)
VIHD
VIVDD
VIFLDO
C254
10u
6.3V
A:ROHM
C255
1u
F
C258
1u
F
C257
1u
B
SYS_V
XRST_KINUTA
XVC_SCK
XCS_KINUTA
VC_SO
VC_SI
IC203
MEMORY
IC203
CXD3131/CXD1450
VSS
NC/ADVS4
TESTOUT
NC/ADVD4
IHD
IVD
IFLD
VDD LOGIC
TESTOUT
VSS LOGIC
IY1
IY2
IY3
IY4
IY5
IY6
IY7
IY8
NC/LCDHOLD
NC/JOGVD
NC/ADVS3
OJUMP
NC/ADVD3
VDD IO
TBCVD
VSS IO
VSS LOGIC
TESTOUT
NC/ADVD2
VDD LOGIC
OY1
OY2
OY3
OY4
OY5
OY6
OY7
OY8
NC/ADVS2
VSS DRAM
VSYSV
VRSTL
XRST
WCK
VDD LOGIC
RCK
VSS LOGIC
SCL
XSCK
XCS
SI
SO
xxx
IC1
IC2
IC3
IC4
VDD IO
OT1
VSS IO
OC4
OC3
OC2
OC1
OFLD
OVD
OHD
VDD DRAM
OT2
CL
MCK
(6) TO(1/13)
CL
(21) TO(5/13)
MCK
(7) TO(2/13)
TBC_VD
MEMVDI_UM
(17) TO(9/13)
MEMVDI
MEMHDI
MEMFLDI
VMI1
VMI2
VMI3
VMI4
VMI5
VMI6
VMI7
VMI8
CMI1
CMI2
CMI3
CMI4
(13) TO(2/13)
YMO1
YMO2
YMO3
YMO4
YMO5
YMO6
YMO7
YMO8
CMO1
CMO2
CMO3
CMO4
(12) TO(2/13)
YMI1
YMI2
YMI3
YMI4
YMI5
YMI6
YMI7
YMI8
LCD_HOLD
JOG_VD
XSYS_RST
XCS_OSD
XOSD_SCK
OSD_SO
(24) TO(11/13)
IC202
CHARACTER
GENERATOR
IC202
CLK
XCS
DATA
XPCL
VDD
CMDCT
OSC
OSC
TEST
GND
XHSYNC
XVSYNC
VC0
VC1
VC2
BLKA
VC3
BLKB
NC
BLKC
C261
XX
R283
0Ω
C256
1u
B
CGCK
COLOR1
COLOR2
COLOR3
COLOR4
OSD_P_ON
OSD_R_ON
OSD_L_ON
IC202
MB90097PFV-G-118-BND-ER
:CCD-TRV87/TRV87P
BU2995-07FV-E2
:EXCEPT CCD-TRV87/TRV87P
XCS_KINUTA
SYS_V
XRST_KINUTA
XVC_SCK
VC_SO
VC_SI
LCD_HOLD
JOG_VD
(18) TO(2/13)
OSD_L_ON_A
OSD_R_ON_A
OSD_P_ON_A
CGCK_A
COLOR_4_A
COLOR_3_A
COLOR_2_A
COLOR_1_A
(11) TO(2/13)
PHOTO MODE MODEL : CCD-TRV87/TRV87P
16

MEMORY
VC-234 (3/13)

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.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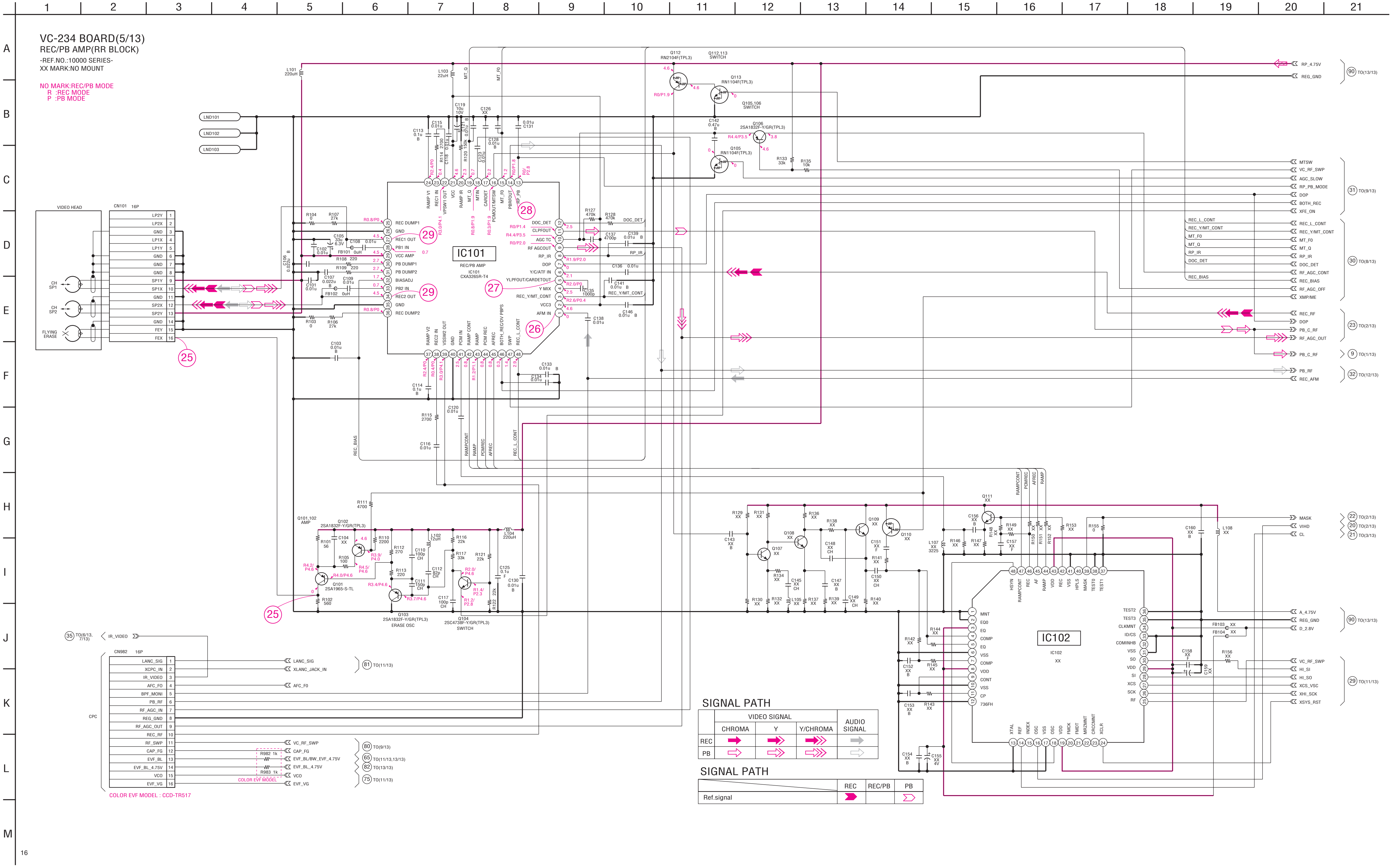
VC-234 BOARD(4/13)
FOCUS/ZOOM MOTOR DRIVE
(LD BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC552
NJM324V(TE2)
IRIS DRIVE
HALL BIASS
HALL GAIN
HALL AMP
IC551
FOCUS/ZOOM
MOTOR DRIVE
UPD16877MA-6A5-E2
Q551
2SC4738F-Y/GR(TPL3)
IRIS DRIVE
Q552
2SA1832F-Y/GR(TPL3)
FOCUS SENSOR SWITCH
Q553
2SA1832F-Y/GR(TPL3)
ZOOM SENSOR SWITCH
Q554
2SC4738F-Y/GR(TPL3)
Q554
AMP
D551
MA111-(K8).S0
CN551 24P
DRIVE(+)
DRIVE(-)
CONT(+)
CONT(-)
HALL(-)
BIAS(-)
HALL(+)
BIAS(+)
TEMP
TEMP
ZM_SENSE_OUT
GND
FC_SENSE_OUT
FC_SENSE_VCC
PLA/GLASS
ZM_SENSE_VCC
ZM_A
ZM_B
ZM_XB
ZM_XA
FC_A
FC_B
FC_XB
FC_XA
ZOOM
LENS BLOCK
HALL_REF
HALL_OFFSET
HALL_GAIN
28 TO(8/13)
A_4.75V
D_2.8V
REG_GND
MT_GND
MT_4.75V
90 TO(13/13)
FC_RST_LED
IRIS_PWM
ZM_RST_LED
LENS_FILTER_ON_SW
HALL_AD
FC_RST
ZM_RST
LENS_TEMP_AD
PLA/GLASS
27 TO(9/13)
IRIS_COM
ZM_RST
FC_RST
DIR1B
DIR1A
EN1
DIR0B
ENQ
DIR0A
26 TO(2/13)
ZOOM LENS BLOCK is replaced as a block so that there SCHEMATIC DIAGRAM and PRINTED WIRING BOARD are omitted.
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-94 for waveforms.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J
K
L
M
VC-234 BOARD(5/13)
REC/PB AMP(RR BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
LND101
LND102
LND103
VIDEO HEAD
CN101 16P
CH SP1
CH SP2
FLYING ERASE
LP2Y
LP2X
GND
LP1X
LP1Y
SP1Y
SP1X
SP2X
SP2Y
FEY
FEX
IC101
REC/PB AMP
IC101
CXA3265R-T4
REC DUMP1
REC1 OUT
PB1 IN
VCC AMP
PB DUMP1
PB DUMP2
BIASADJ
PB2 IN
REC2 OUT
REC DUMP2
DOC_DET
CLPFOUT
AGC TC
RF AGCOUT
RP_IR
DOP
Y/C/ATF IN
YLPFOUT/CARDETOUT
Y MIX
REC_Y/MT_CONT
VCC3
AFM IN
L101 220uH
L103 22uH
MT_Q
MT_F0
Q112 RN2104F(TPL3)
Q112,113 SWITCH
Q113 RN1104F(TPL3)
Q105,106 SWITCH
Q106 2SA1832F-Y/GR(TPL3)
Q105 RN1104F(TPL3)
Q101,102 AMP
Q102 2SA1832F-Y/GR(TPL3)
Q101 2SA1965-S-TL
Q103 2SA1832F-Y/GR(TPL3) ERASE OSC
Q104 2SC4738F-Y/GR(TPL3) SWITCH
IC102
IC102
XX
Q111 XX
Q107 XX
Q108 XX
Q109 XX
Q110 XX
RP_4.75V
REG_GND
TO(13/13)
MTSW
VC_RF_SWP
AGC_SLOW
RP_PB_MODE
DOP
BOTH_REC
XFE_ON
TO(9/13)
REC_L_CONT
REC_Y/MT_CONT
MT_F0
MT_Q
RP_IR
DOC_DET
RF_AGC_CONT
REC_BIAS
RF_AGC_OFF
XMP/ME
TO(8/13)
REC_RF
DOP
PB_C_RF
RF_AGC_OUT
TO(2/13)
PB_C_RF
TO(1/13)
PB_RF
REC_AFM
TO(12/13)
MASK
VIHD
CL
TO(2/13)
TO(2/13)
TO(3/13)
A_4.75V
REG_GND
D_2.8V
TO(13/13)
VC_RF_SWP
HI_SI
HI_SO
XCS_VSC
XHI_SCK
XSYS_RST
TO(11/13)
TO(6/13, 7/13)
IR_VIDEO
CN982 16P
CPC
LANC_SIG
XCPC_IN
IR_VIDEO
AFC_FO
BPF_MONI
PB_RF
RF_AGC_IN
REG_GND
RF_AGC_OUT
REC_RF
RF_SWP
CAP_FG
EVF_BL
EVF_BL_4.75V
VCO
EVF_VG
LANC_SIG
XLANC_JACK_IN
TO(11/13)
AFC_F0
VC_RF_SWP
CAP_FG
EVF_BL/BW_EVF_4.75V
EVF_BL_4.75V
VCO
EVF_VG
TO(9/13)
TO(11/13,13/13)
TO(13/13)
TO(11/13)
R982 1k
R983 1k
COLOR EVF MODEL
COLOR EVF MODEL : CCD-TR517
25
26
27
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16

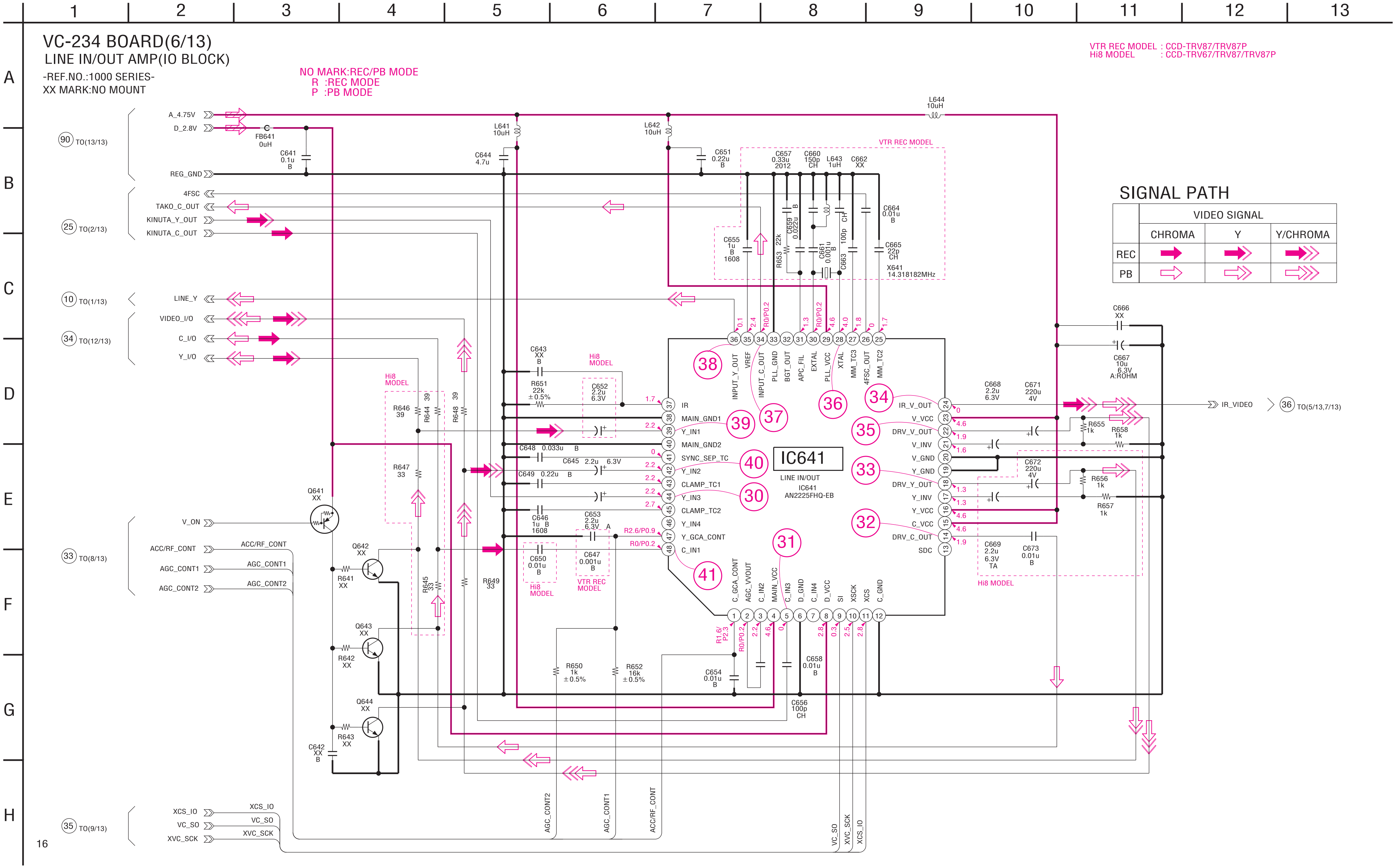
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

SIGNAL PATH

	REC	REC/PB	PB
Ref.signal	❯		❯

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-95 for waveforms.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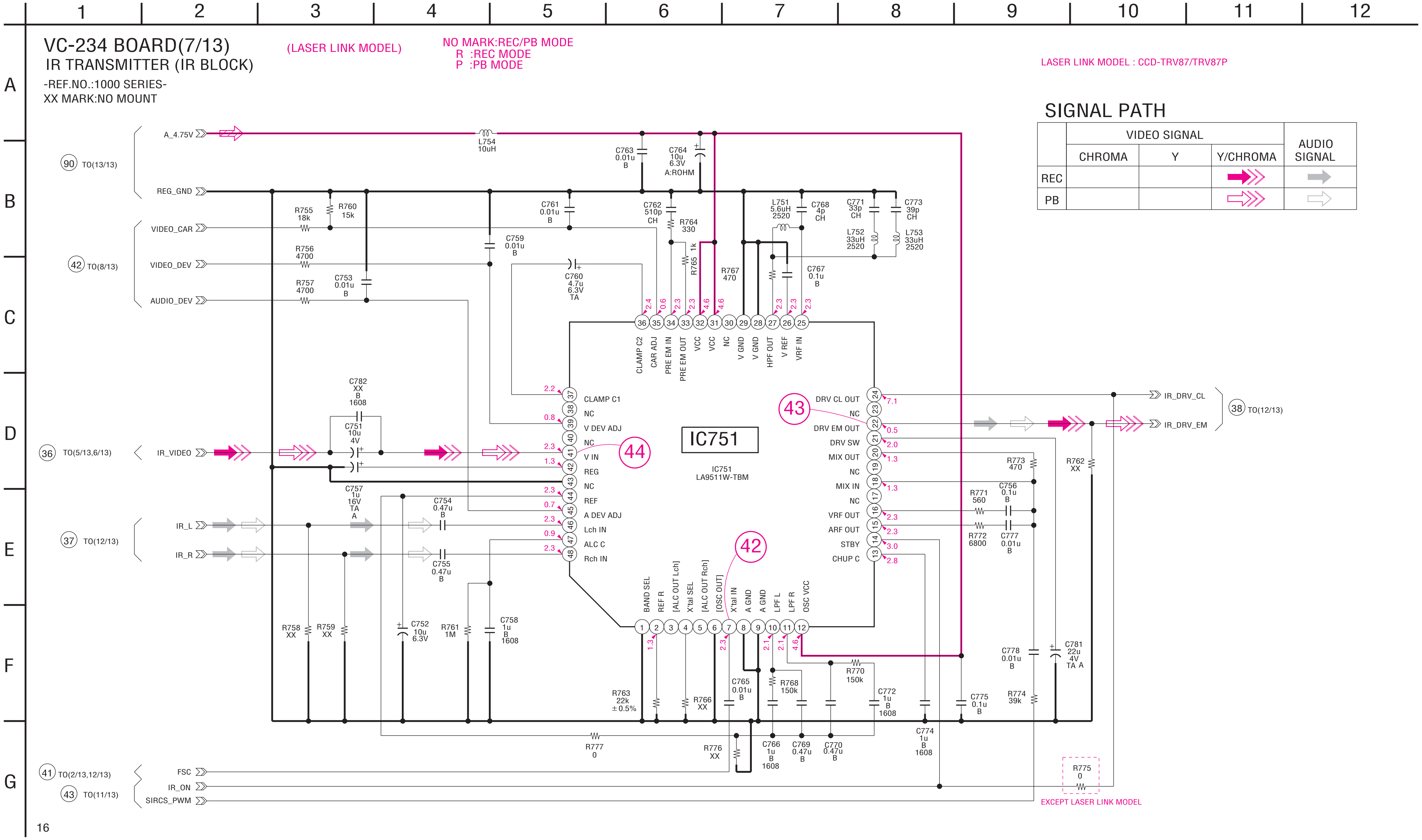
A
B
C
D
E
F
G
H
VC-234 BOARD(6/13)
LINE IN/OUT AMP(IO BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
VTR REC MODEL : CCD-TRV87/TRV87P
Hi8 MODEL : CCD-TRV67/TRV87/TRV87P
A_4.75V
D_2.8V
REG_GND
(90) TO(13/13)
4FSC
TAKO_C_OUT
KINUTA_Y_OUT
KINUTA_C_OUT
(25) TO(2/13)
LINE_Y
(10) TO(1/13)
VIDEO_I/O
C_I/O
Y_I/O
(34) TO(12/13)
V_ON
ACC/RF_CONT
AGC_CONT1
AGC_CONT2
(33) TO(8/13)
XCS_IO
VC_SO
XVC_SCK
(35) TO(9/13)
16
FB641 0uH
C641 0.1u B
L641 10uH
C644 4.7u
L642 10uH
C651 0.22u B
L644 10uH
VTR REC MODEL
C657 0.33u 2012
C660 150p CH
L643 1uH
C662 XX
C664 0.01u B
C655 1u B 1608
R653 22k
C659 0.022u
C661 0.001u B
C663 100p CH
C665 22p CH
X641 14.318182MHz
C643 XX B
R651 22k ±0.5%
Hi8 MODEL
C652 2.2u 6.3V
R646 39
R644 39
R648 39
R647 33
C648 0.033u B
C645 2.2u 6.3V
C649 0.22u B
C646 1u B 1608
C653 2.2u 6.3V A
C650 0.01u B
C647 0.001u B
VTR REC MODEL
Q641 XX
Q642 XX
R641 XX
Q643 XX
R642 XX
Q644 XX
R643 XX
C642 XX B
R645 33
R649 33
R650 1k ±0.5%
R652 16k ±0.5%
C654 0.01u B
C658 0.01u B
C656 100p CH
IC641
LINE IN/OUT
IC641 AN2225FHQ-EB
INPUT_Y_OUT
VREF
INPUT_C_OUT
PLL_GND
BGT_OUT
APC_FIL
EXTAL
PLL_VCC
XTAL
MM_TC3
4FSC_OUT
MM_TC2
IR
MAIN_GND1
Y_IN1
MAIN_GND2
SYNC_SEP_TC
Y_IN2
CLAMP_TC1
Y_IN3
CLAMP_TC2
Y_IN4
Y_GCA_CONT
C_IN1
C_GCA_CONT
AGC_V/VOUT
C_IN2
MAIN_VCC
C_IN3
D_GND
C_IN4
D_VCC
SI
XSCK
XCS
C_GND
IR_V_OUT
V_VCC
DRV_V_OUT
V_INV
V_GND
Y_GND
DRV_Y_OUT
Y_INV
Y_VCC
C_VCC
DRV_C_OUT
SDC
38
39
37
36
34
35
40
30
33
31
32
41
C666 XX
C667 10u 6.3V A:ROHM
C668 2.2u 6.3V
C671 220u 4V
R655 1k
R658 1k
C672 220u 4V
R656 1k
R657 1k
C669 2.2u 6.3V TA
C673 0.01u B
Hi8 MODEL
IR_VIDEO
(36) TO(5/13,7/13)
AGC_CONT2
AGC_CONT1
ACC/RF_CONT
VC_SO
XVC_SCK
XCS_IO
R1.6/P2.3
R0/P0.2
R2.6/P0.9
SIGNAL PATH

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡➡	➡➡➡
PB	⇨	⇨⇨	⇨⇨⇨

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-95 for waveforms.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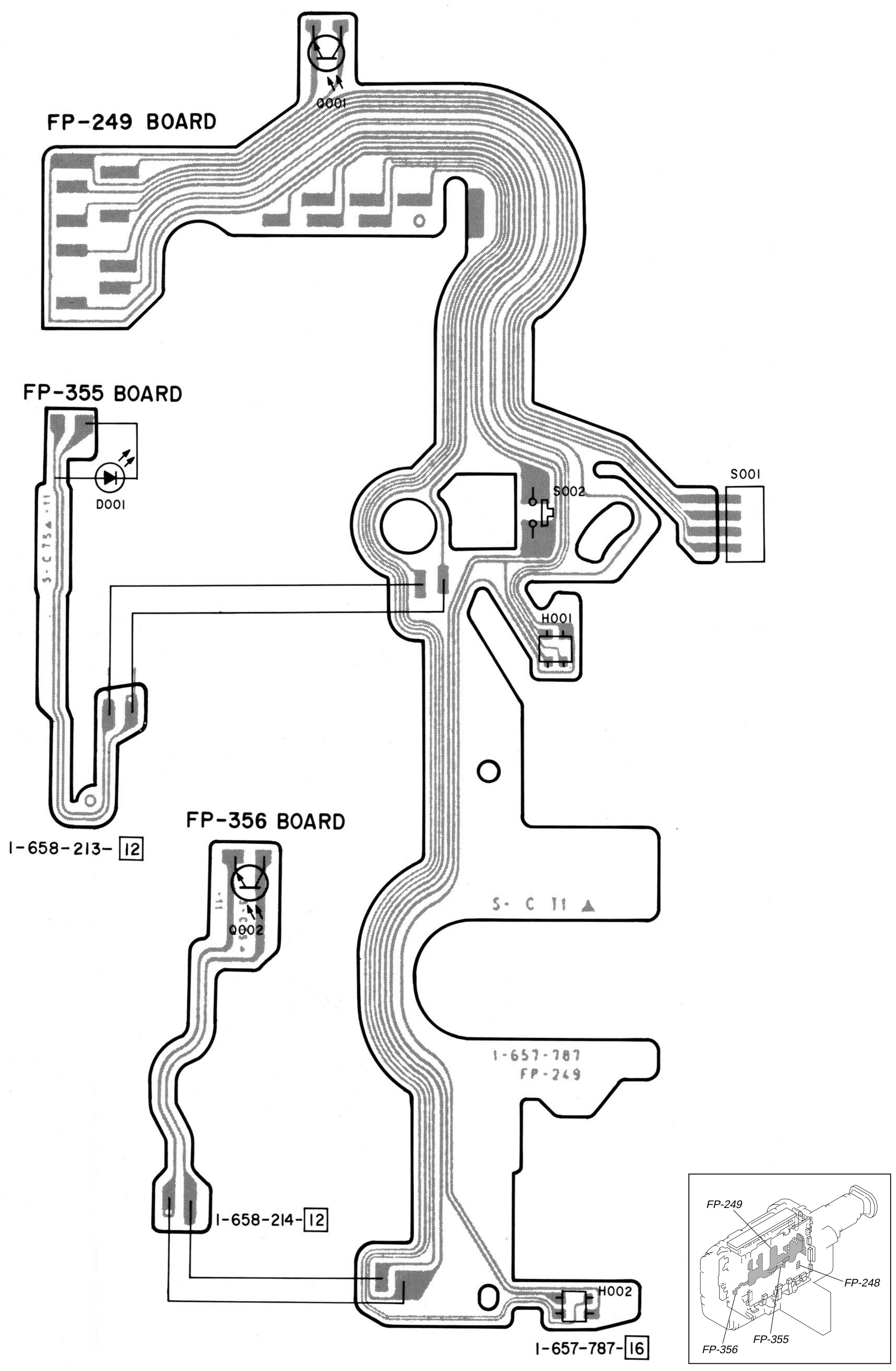
11
12
A
B
C
D
E
F
G
VC-234 BOARD(7/13)
IR TRANSMITTER (IR BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
(LASER LINK MODEL)
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
LASER LINK MODEL : CCD-TRV87/TRV87P
SIGNAL PATH
90 TO(13/13)
A_4.75V
REG_GND
42 TO(8/13)
VIDEO_CAR
VIDEO_DEV
AUDIO_DEV
36 TO(5/13,6/13)
IR_VIDEO
37 TO(12/13)
IR_L
IR_R
41 TO(2/13,12/13)
43 TO(11/13)
FSC
IR_ON
SIRCS_PWM
38 TO(12/13)
IR_DRV_CL
IR_DRV_EM
L754 10uH
C763 0.01u B
C764 10u 6.3V A:ROHM
R755 18k
R760 15k
R756 4700
R757 4700
C753 0.01u B
C761 0.01u B
C759 0.01u B
C760 4.7u 6.3V TA
C762 510p CH
R764 330
R765 1k
R767 470
L751 5.6uH 2520
C768 4p CH
C771 33p CH
C773 39p CH
L752 33uH 2520
L753 33uH 2520
C767 0.1u B
C782 XX B 1608
C751 10u 4V
C757 1u 16V TA A
C754 0.47u B
C755 0.47u B
C752 10u 6.3V
R758 XX
R759 XX
R761 1M
C758 1u B 1608
R763 22k ±0.5%
R766 XX
C765 0.01u B
R768 150k
R770 150k
C772 1u B 1608
C774 1u B 1608
C775 0.1u B
C766 1u B 1608
C769 0.47u B
C770 0.47u B
R776 XX
R777 0
R773 470
R771 560
C756 0.1u B
R772 6800
C777 0.01u B
R762 XX
C778 0.01u B
C781 22u 4V TA A
R774 39k
R775 0
EXCEPT LASER LINK MODEL
IC751
IC751 LA9511W-TBM
43
44
42
CLAMP C2
CAR ADJ
PRE EM IN
PRE EM OUT
VCC
VCC
NC
V GND
V GND
HPF OUT
V REF
VRF IN
CLAMP C1
NC
V DEV ADJ
NC
V IN
REG
NC
REF
A DEV ADJ
Lch IN
ALC C
Rch IN
DRV CL OUT
NC
DRV EM OUT
DRV SW
MIX OUT
NC
MIX IN
NC
VRF OUT
ARF OUT
STBY
CHUP C
BAND SEL
REF R
[ALC OUT Lch]
X'tal SEL
[ALC OUT Rch]
[OSC OUT]
X'tal IN
A GND
A GND
LPF L
LPF R
OSC VCC
2.4
0.6
2.3
2.3
4.6
4.6
2.3
2.3
2.3
2.2
0.8
2.3
1.3
2.3
0.7
2.3
0.9
2.3
7.1
0.5
2.0
1.3
1.3
2.3
2.3
3.0
2.8
1.3
2.3
2.1
2.1
4.6
16

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

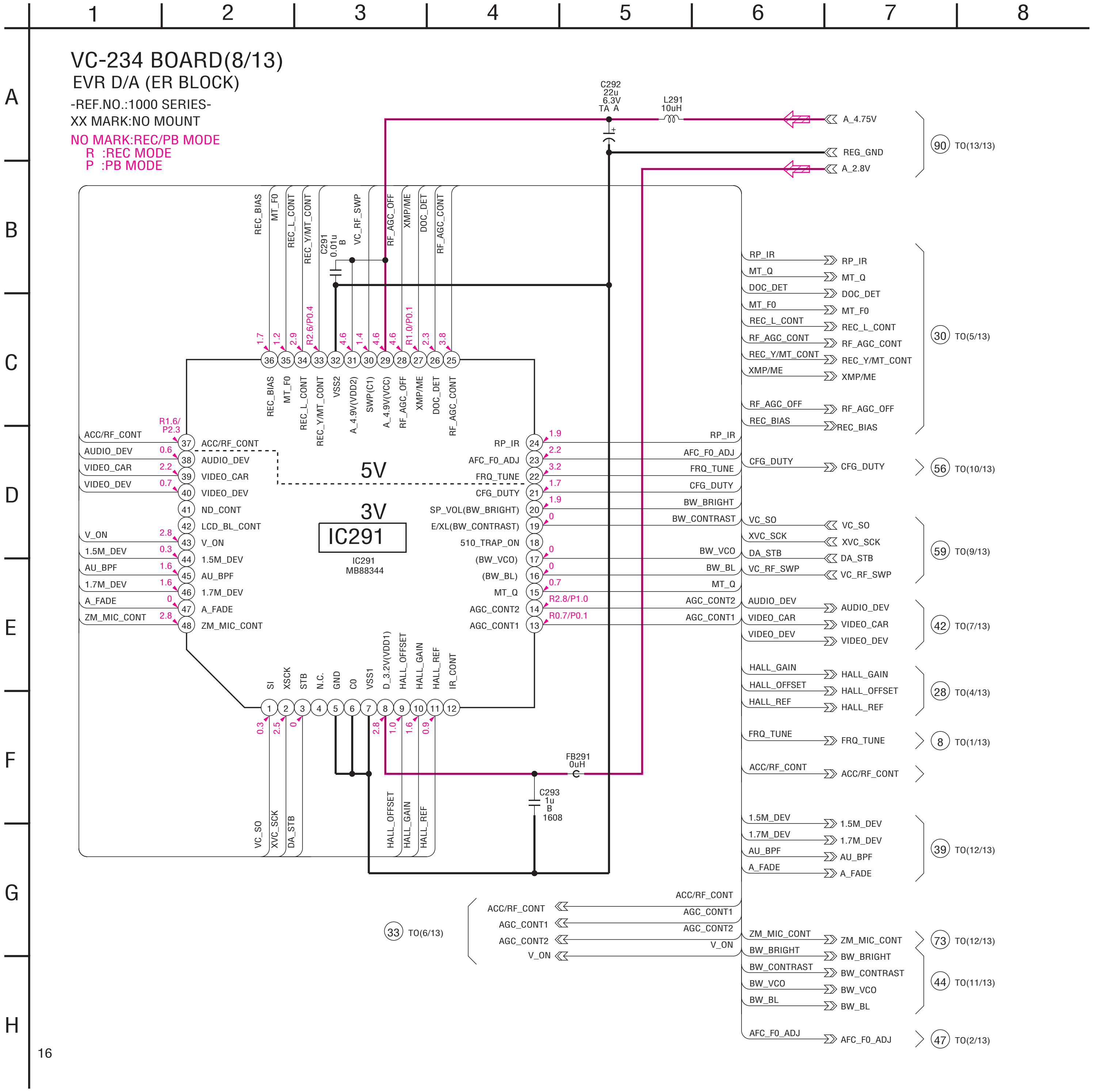
FP-249 (S/T REEL SENSOR, TAPE TOP), FP-356 (TAPE END), FP-355 (TAPE LED) FLEXIBLE BOARD

— Ref. No. FP-249, 356, 355 FLEXIBLE board; 5,000 series —


FP-249 BOARD
Q001
FP-355 BOARD
D001
S001
S002
H001
1-658-213-12
FP-356 BOARD
Q002
S- C 11
1-657-787
FP-249
1-658-214-12
H002
1-657-787-16
FP-249
FP-248
FP-355
FP-356

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.


1
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7
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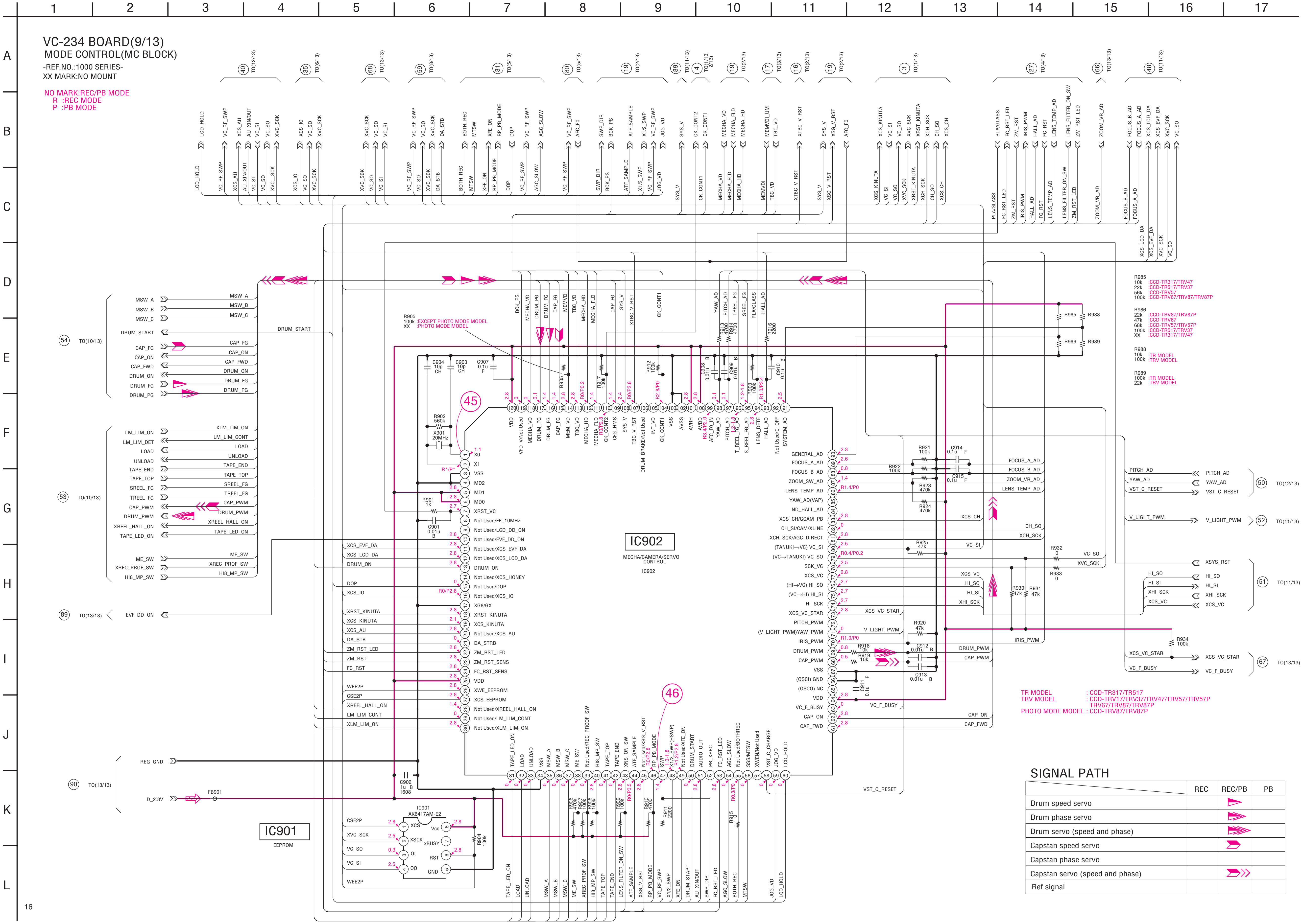
A
B
C
D
E
F
G
H
VC-234 BOARD(8/13)
EVR D/A (ER BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
C292 22u 6.3V TA A
L291 10uH
A_4.75V
REG_GND
A_2.8V
TO(13/13)
C291 0.01u B
IC291
IC291 MB88344
5V
3V
REC_BIAS
MT_F0
REC_L_CONT
REC_Y/MT_CONT
VSS2
A_4.9V(VDD2)
SWP(C1)
VC_RF_SWP
A_4.9V(VCC)
RF_AGC_OFF
XMP/ME
DOC_DET
RF_AGC_CONT
ACC/RF_CONT
AUDIO_DEV
VIDEO_CAR
VIDEO_DEV
ND_CONT
LCD_BL_CONT
V_ON
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
ZM_MIC_CONT
RP_IR
AFC_F0_ADJ
FRQ_TUNE
CFG_DUTY
SP_VOL(BW_BRIGHT)
E/XL(BW_CONTRAST)
510_TRAP_ON
(BW_VCO)
(BW_BL)
MT_Q
AGC_CONT2
AGC_CONT1
SI
XSCK
STB
N.C.
GND
C0
VSS1
D_3.2V(VDD1)
HALL_OFFSET
HALL_GAIN
HALL_REF
IR_CONT
VC_SO
XVC_SCK
DA_STB
FB291 0uH
C293 1u B 1608
TO(5/13)
TO(10/13)
TO(9/13)
TO(7/13)
TO(4/13)
TO(1/13)
TO(12/13)
TO(6/13)
TO(11/13)
TO(2/13)
BW_BRIGHT
BW_CONTRAST
BW_VCO
BW_BL
REC_BIAS
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-95 for waveforms.


VC-234 BOARD(9/13)
MODE CONTROL(MC BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC902
MECHA/CAMERA/SERVO CONTROL
IC901
EEPROM
IC901 AK6417AM-E2
X901 20MHz
R905 100k :EXCEPT PHOTO MODE MODEL
XX :PHOTO MODE MODEL
45
46
16

R985
10k :CCD-TR317/TRV47
22k :CCD-TR517/TRV37
56k :CCD-TRV57
100k :CCD-TRV67/TRV87/TRV87P

R986
22k :CCD-TRV87/TRV87P
47k :CCD-TRV67
68k :CCD-TRV57/TRV57P
100k :CCD-TR517/TRV37
XX :CCD-TR317/TRV47

R988
10k :TR MODEL
100k :TRV MODEL

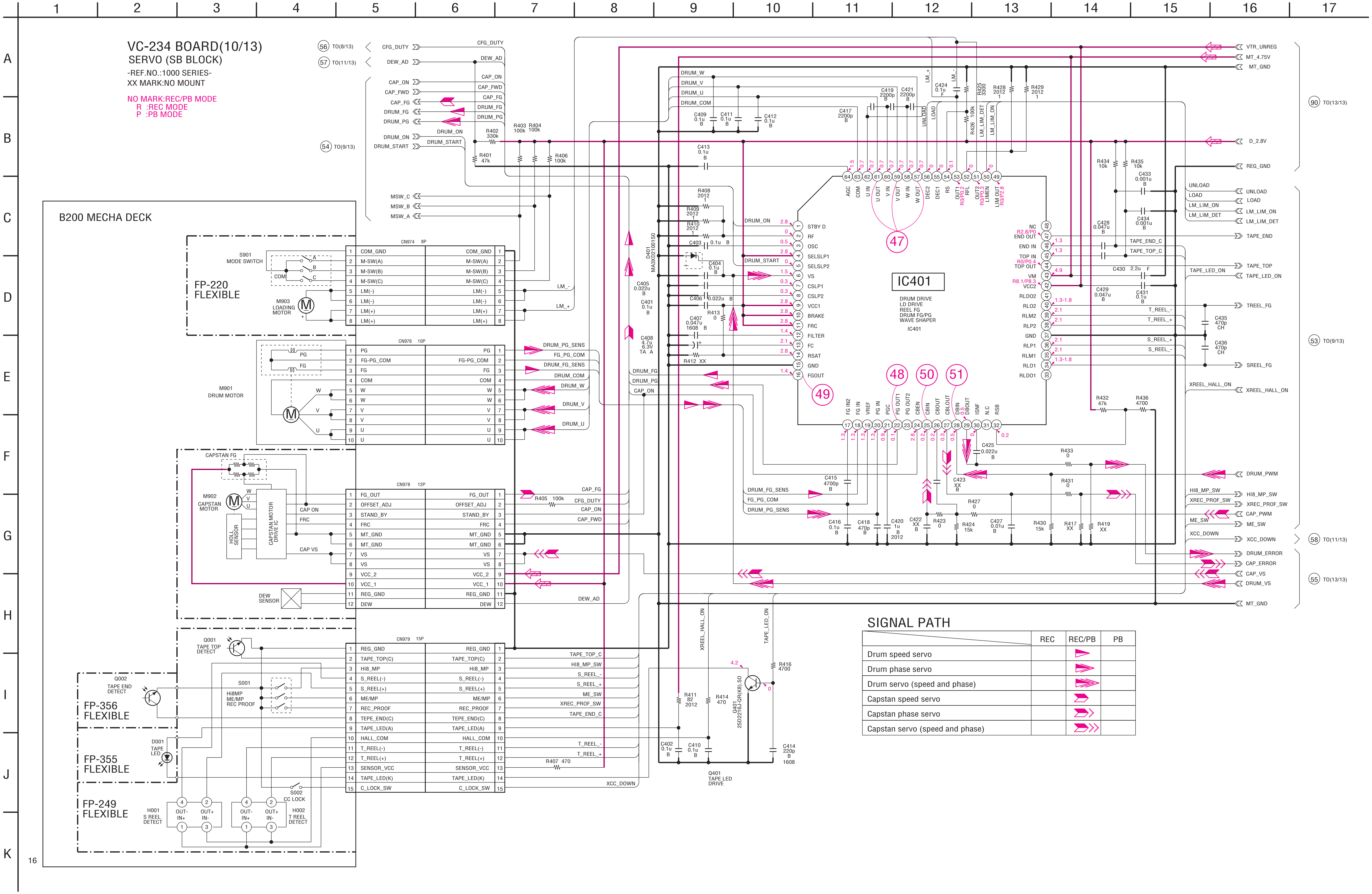
R989
100k :TR MODEL
22k :TRV MODEL

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P
TRV67/TRV87/TRV87P
PHOTO MODE MODEL : CCD-TRV87/TRV87P

SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▶	
Drum phase servo		▶>	
Drum servo (speed and phase)		▶>>	
Capstan speed servo		➤	
Capstan phase servo			
Capstan servo (speed and phase)		➤››	
Ref.signal			

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-95 for waveforms.
- Refer to page 4-23 for FP-249, FP-356, FP-355 flexible board.

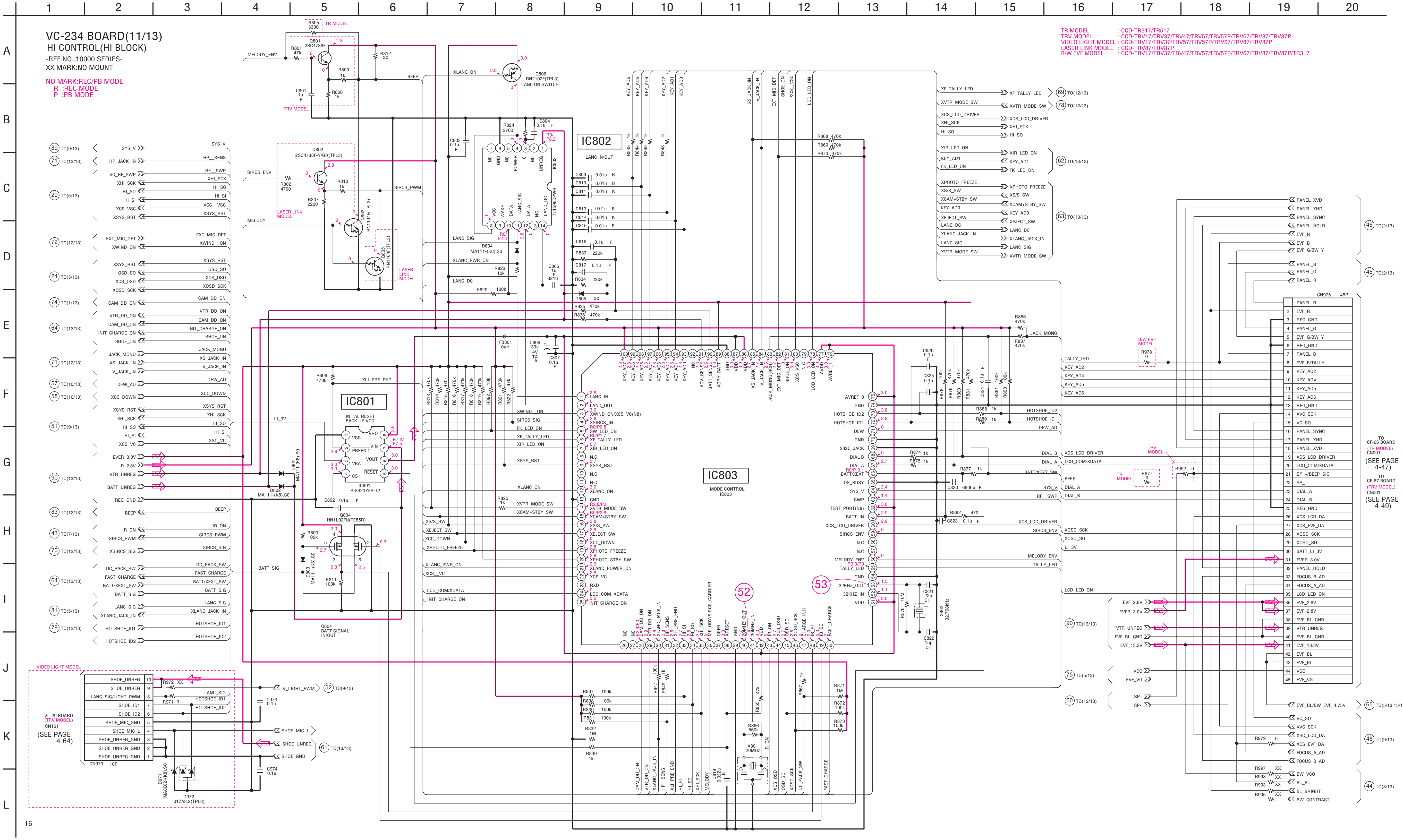

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K
VC-234 BOARD(10/13)
SERVO (SB BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
B200 MECHA DECK
FP-220 FLEXIBLE
FP-356 FLEXIBLE
FP-355 FLEXIBLE
FP-249 FLEXIBLE
S901 MODE SWITCH
M903 LOADING MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
CAPSTAN FG
CAPSTAN MOTOR DRIVE IC
HOLL SENSOR
DEW SENSOR
Q001 TAPE TOP DETECT
Q002 TAPE END DETECT
S001 Hi8MP ME/MP REC PROOF
D001 TAPE LED
H001 S REEL DETECT
H002 T REEL DETECT
S002 CC LOCK
CN974 8P
CN976 10P
CN978 12P
CN979 15P
IC401
DRUM DRIVE
LD DRIVE
REEL FG
DRUM FG/PG
WAVE SHAPER
D401 MA3X021001S0
Q401 2SD2216J-QR(K8).SO
Q401 TAPE LED DRIVE
56 TO(8/13)
57 TO(11/13)
54 TO(9/13)
90 TO(13/13)
53 TO(9/13)
58 TO(11/13)
55 TO(13/13)
47 48 49 50 51
VTR_UNREG
MT_4.75V
MT_GND
D_2.8V
REG_GND
UNLOAD
LOAD
LM_LIM_ON
LM_LIM_DET
TAPE_END
TAPE_TOP
TAPE_LED_ON
TREEL_FG
SREEL_FG
XREEL_HALL_ON
DRUM_PWM
HI8_MP_SW
XREC_PROF_SW
CAP_PWM
ME_SW
XCC_DOWN
DRUM_ERROR
CAP_ERROR
CAP_VS
DRUM_VS
CFG_DUTY
DEW_AD
CAP_ON
CAP_FWD
CAP_FG
DRUM_FG
DRUM_PG
DRUM_ON
DRUM_START
MSW_C
MSW_B
MSW_A
16

SIGNAL PATH

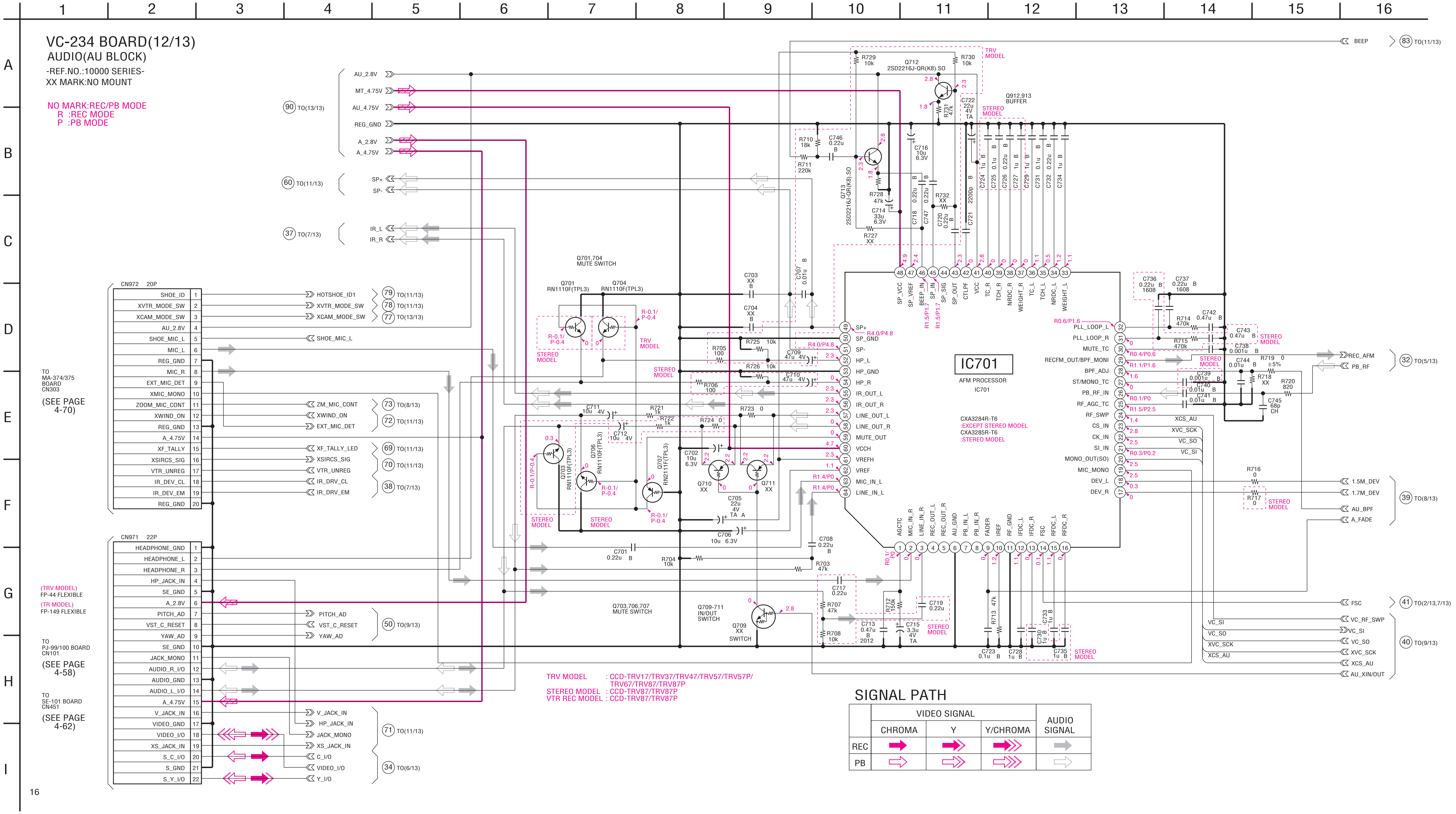
	REC	REC/PB	PB
Drum speed servo		➤	
Drum phase servo		➤	
Drum servo (speed and phase)		➤	
Capstan speed servo		➤	
Capstan phase servo		➤	
Capstan servo (speed and phase)		➤	

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-95 for waveforms.


VC-234 BOARD(11/13)
HI CONTROL(HI BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
B/W EVF MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317
IC801
INITIAL RESET BACK UP VCC
IC801 S-8423YFS-T2
IC802
LANC IN/OUT
IC802 TL1596CPWR
IC803
MODE CONTROL IC803
Q801 2SC4738F
Q802 2SC4738F-Y/GR(TPL3)
Q803 RN1104F(TPL3)
Q805 RN1104F(TPL3)
Q806 RN2102F(TPL3) LANC ON SWITCH
Q804 HN1L02FU(TE85R)
Q804 BATT SIGNAL IN/OUT
D801 MA111-(K8).SO
D802 MA111-(K8).SO
D803 MA111-(K8).SO
D804 MA111-(K8).SO
D971 MA8082-(K8).SO
D972 01ZA8.2(TPL3)
X801 20MHz
X802 32.768kHz
TRV MODEL
TR MODEL
LASER LINK MODEL
VIDEO LIGHT MODEL
VL-29 BOARD (TRV MODEL) CN151 (SEE PAGE 4-64)
CN973 10P
CN975 45P
TO CF-66 BOARD (TR MODEL) CN001 (SEE PAGE 4-47)
TO CF-67 BOARD (TRV MODEL) CN001 (SEE PAGE 4-49)
52
53
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.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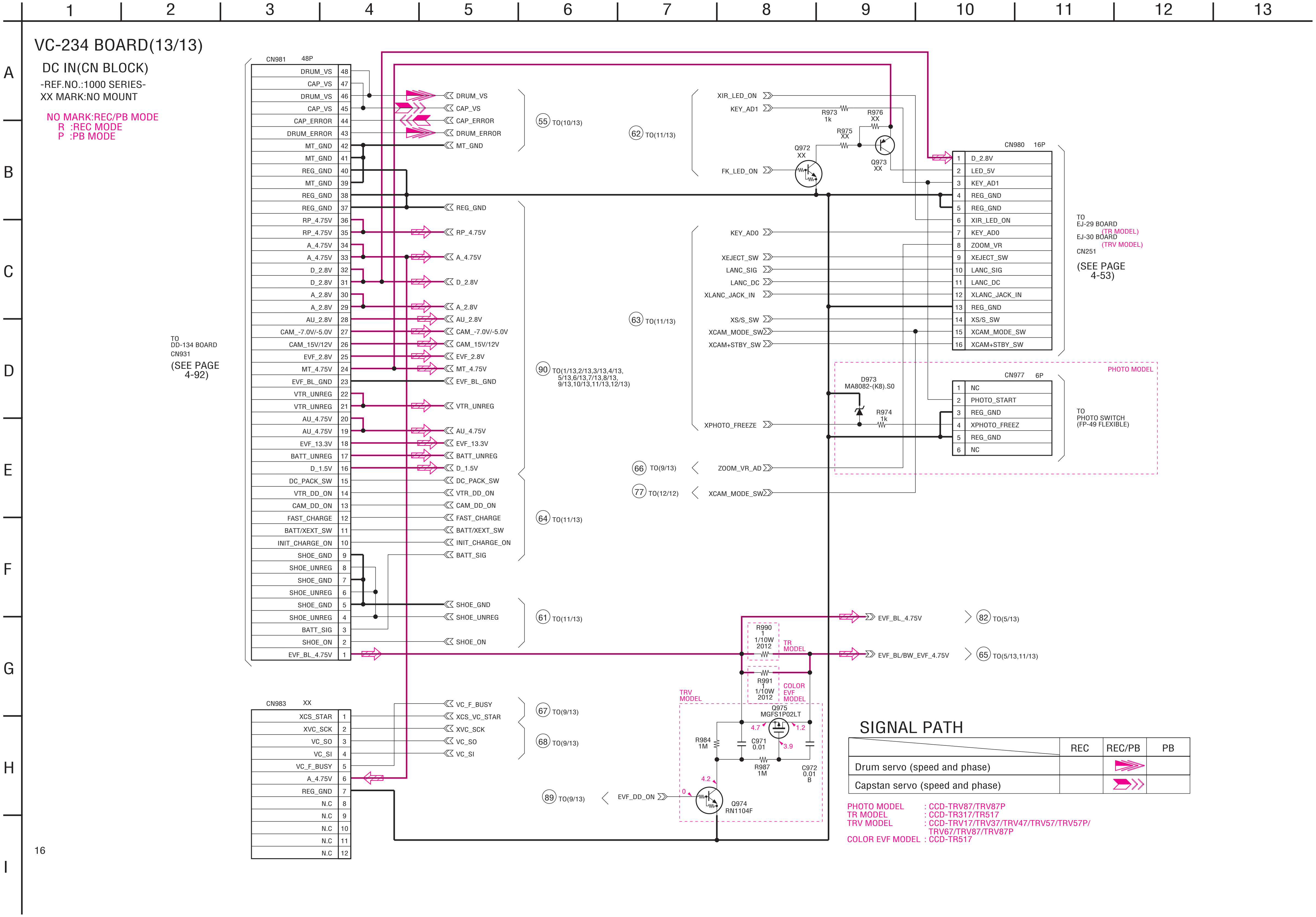
15
16
A
B
C
D
E
F
G
H
I
VC-234 BOARD(12/13)
AUDIO(AU BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
AU_2.8V
MT_4.75V
AU_4.75V
REG_GND
A_2.8V
A_4.75V
(90) TO(13/13)
(60) TO(11/13)
SP+
SP-
(37) TO(7/13)
IR_L
IR_R
CN972 20P
SHOE_ID
XVTR_MODE_SW
XCAM_MODE_SW
AU_2.8V
SHOE_MIC_L
MIC_L
REG_GND
MIC_R
EXT_MIC_DET
XMIC_MONO
ZOOM_MIC_CONT
XWIND_ON
REG_GND
A_4.75V
XF_TALLY
XSIRCS_SIG
VTR_UNREG
IR_DEV_CL
IR_DEV_EM
REG_GND
TO MA-374/375 BOARD CN303
(SEE PAGE 4-70)
HOTSHOE_ID1
XVTR_MODE_SW
XCAM_MODE_SW
(79) TO(11/13)
(78) TO(11/13)
(77) TO(13/13)
SHOE_MIC_L
ZM_MIC_CONT
XWIND_ON
EXT_MIC_DET
(73) TO(8/13)
(72) TO(11/13)
XF_TALLY_LED
XSIRCS_SIG
VTR_UNREG
IR_DRV_CL
IR_DRV_EM
(69) TO(11/13)
(70) TO(11/13)
(38) TO(7/13)
CN971 22P
HEADPHONE_GND
HEADPHONE_L
HEADPHONE_R
HP_JACK_IN
SE_GND
A_2.8V
PITCH_AD
VST_C_RESET
YAW_AD
SE_GND
JACK_MONO
AUDIO_R_I/O
AUDIO_GND
AUDIO_L_I/O
A_4.75V
V_JACK_IN
VIDEO_GND
VIDEO_I/O
XS_JACK_IN
S_C_I/O
S_GND
S_Y_I/O
(TRV MODEL) FP-44 FLEXIBLE
(TR MODEL) FP-149 FLEXIBLE
TO PJ-99/100 BOARD CN101
(SEE PAGE 4-58)
TO SE-101 BOARD CN451
(SEE PAGE 4-62)
PITCH_AD
VST_C_RESET
YAW_AD
(50) TO(9/13)
V_JACK_IN
HP_JACK_IN
JACK_MONO
XS_JACK_IN
C_I/O
VIDEO_I/O
Y_I/O
(71) TO(11/13)
(34) TO(6/13)
16
Q701,704 MUTE SWITCH
Q701 RN1110F(TPL3)
Q704 RN1110F(TPL3)
Q703 RN1110F(TPL3)
Q706 RN1110F(TPL3)
Q707 RN2111F(TPL3)
Q703,706,707 MUTE SWITCH
Q709-711 IN/OUT SWITCH
Q709 XX SWITCH
Q710 XX
Q711 XX
Q712 2SD2216J-QR(K8).SO
Q713 2SD2216J-QR(K8).SO
Q912,913 BUFFER
TRV MODEL
STEREO MODEL
IC701
AFM PROCESSOR
IC701
CXA3284R-T6
:EXCEPT STEREO MODEL
CXA3285R-T6
:STEREO MODEL
SP_VCC
SP_VREF
BEEP_IN
SP_IN
SP_SIG
SP_OUT
CTLPF
VCC
TC_R
TCH_R
NRDC_R
WEIGHT_R
TC_L
TCH_L
NRDC_L
WEIGHT_L
PLL_LOOP_L
PLL_LOOP_R
MUTE_TC
RECFM_OUT/BPF_MONI
BPF_ADJ
ST/MONO_TC
PB_RF_IN
RF_AGC_TC
RF_SWP
CS_IN
CK_IN
SI_IN
MONO_OUT(SO)
MIC_MONO
DEV_L
DEV_R
SP+
SP_GND
SP-
HP_L
HP_GND
HP_R
IR_OUT_L
IR_OUT_R
LINE_OUT_L
LINE_OUT_R
MUTE_OUT
VCCH
VREFH
VREF
MIC_IN_L
LINE_IN_L
AGCTC
MIC_IN_R
LINE_IN_R
REC_OUT_L
REC_OUT_R
AU_GND
PB_IN_L
PB_IN_R
FADER
IREF
RF_GND
IFDC_L
IFDC_R
FSC
RFDC_L
RFDC_R
BEEP
(83) TO(11/13)
REC_AFM
PB_RF
(32) TO(5/13)
1.5M_DEV
1.7M_DEV
AU_BPF
A_FADE
(39) TO(8/13)
FSC
(41) TO(2/13,7/13)
VC_RF_SWP
VC_SI
VC_SO
XVC_SCK
XCS_AU
(40) TO(9/13)
AU_XIN/OUT
XCS_AU
XVC_SCK
VC_SO
VC_SI

TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
VTR REC MODEL : CCD-TRV87/TRV87P

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡≫	➡⋙	➡
PB	⇨	⇨≫	⇨⋙	⇨

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
VC-234 BOARD(13/13)
DC IN(CN BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
CN981 48P
DRUM_VS 48
CAP_VS 47
DRUM_VS 46
CAP_VS 45
CAP_ERROR 44
DRUM_ERROR 43
MT_GND 42
MT_GND 41
REG_GND 40
MT_GND 39
REG_GND 38
REG_GND 37
RP_4.75V 36
RP_4.75V 35
A_4.75V 34
A_4.75V 33
D_2.8V 32
D_2.8V 31
A_2.8V 30
A_2.8V 29
AU_2.8V 28
CAM_-7.0V/-5.0V 27
CAM_15V/12V 26
EVF_2.8V 25
MT_4.75V 24
EVF_BL_GND 23
VTR_UNREG 22
VTR_UNREG 21
AU_4.75V 20
AU_4.75V 19
EVF_13.3V 18
BATT_UNREG 17
D_1.5V 16
DC_PACK_SW 15
VTR_DD_ON 14
CAM_DD_ON 13
FAST_CHARGE 12
BATT/XEXT_SW 11
INIT_CHARGE_ON 10
SHOE_GND 9
SHOE_UNREG 8
SHOE_GND 7
SHOE_UNREG 6
SHOE_GND 5
SHOE_UNREG 4
BATT_SIG 3
SHOE_ON 2
EVF_BL_4.75V 1
TO DD-134 BOARD CN931 (SEE PAGE 4-92)
DRUM_VS
CAP_VS
CAP_ERROR
DRUM_ERROR
MT_GND
55 TO(10/13)
REG_GND
RP_4.75V
A_4.75V
D_2.8V
A_2.8V
AU_2.8V
CAM_-7.0V/-5.0V
CAM_15V/12V
EVF_2.8V
MT_4.75V
EVF_BL_GND
VTR_UNREG
AU_4.75V
EVF_13.3V
BATT_UNREG
D_1.5V
90 TO(1/13,2/13,3/13,4/13,5/13,6/13,7/13,8/13,9/13,10/13,11/13,12/13)
DC_PACK_SW
VTR_DD_ON
CAM_DD_ON
FAST_CHARGE
BATT/XEXT_SW
INIT_CHARGE_ON
BATT_SIG
64 TO(11/13)
SHOE_GND
SHOE_UNREG
SHOE_ON
61 TO(11/13)
CN983 XX
XCS_STAR 1
XVC_SCK 2
VC_SO 3
VC_SI 4
VC_F_BUSY 5
A_4.75V 6
REG_GND 7
N.C 8
N.C 9
N.C 10
N.C 11
N.C 12
VC_F_BUSY
XCS_VC_STAR
XVC_SCK
VC_SO
VC_SI
67 TO(9/13)
68 TO(9/13)
89 TO(9/13)
EVF_DD_ON
16
XIR_LED_ON
KEY_AD1
62 TO(11/13)
FK_LED_ON
R973 1k
R976 XX
R975 XX
Q972 XX
Q973 XX
KEY_AD0
XEJECT_SW
LANC_SIG
LANC_DC
XLANC_JACK_IN
XS/S_SW
XCAM_MODE_SW
XCAM+STBY_SW
63 TO(11/13)
XPHOTO_FREEZE
66 TO(9/13)
ZOOM_VR_AD
77 TO(12/12)
XCAM_MODE_SW
CN980 16P
1 D_2.8V
2 LED_5V
3 KEY_AD1
4 REG_GND
5 REG_GND
6 XIR_LED_ON
7 KEY_AD0
8 ZOOM_VR
9 XEJECT_SW
10 LANC_SIG
11 LANC_DC
12 XLANC_JACK_IN
13 REG_GND
14 XS/S_SW
15 XCAM_MODE_SW
16 XCAM+STBY_SW
TO EJ-29 BOARD (TR MODEL) EJ-30 BOARD (TRV MODEL) CN251 (SEE PAGE 4-53)
PHOTO MODEL
D973 MA8082-(K8).S0
R974 1k
CN977 6P
1 NC
2 PHOTO_START
3 REG_GND
4 XPHOTO_FREEZE
5 REG_GND
6 NC
TO PHOTO SWITCH (FP-49 FLEXIBLE)
EVF_BL_4.75V
82 TO(5/13)
EVF_BL/BW_EVF_4.75V
65 TO(5/13,11/13)
R990 1 1/10W 2012
TR MODEL
R991 1 1/10W 2012
COLOR EVF MODEL
TRV MODEL
Q975 MGFS1P02LT
4.7
1.2
3.9
R984 1M
C971 0.01
R987 1M
C972 0.01 B
4.2
0
Q974 RN1104F

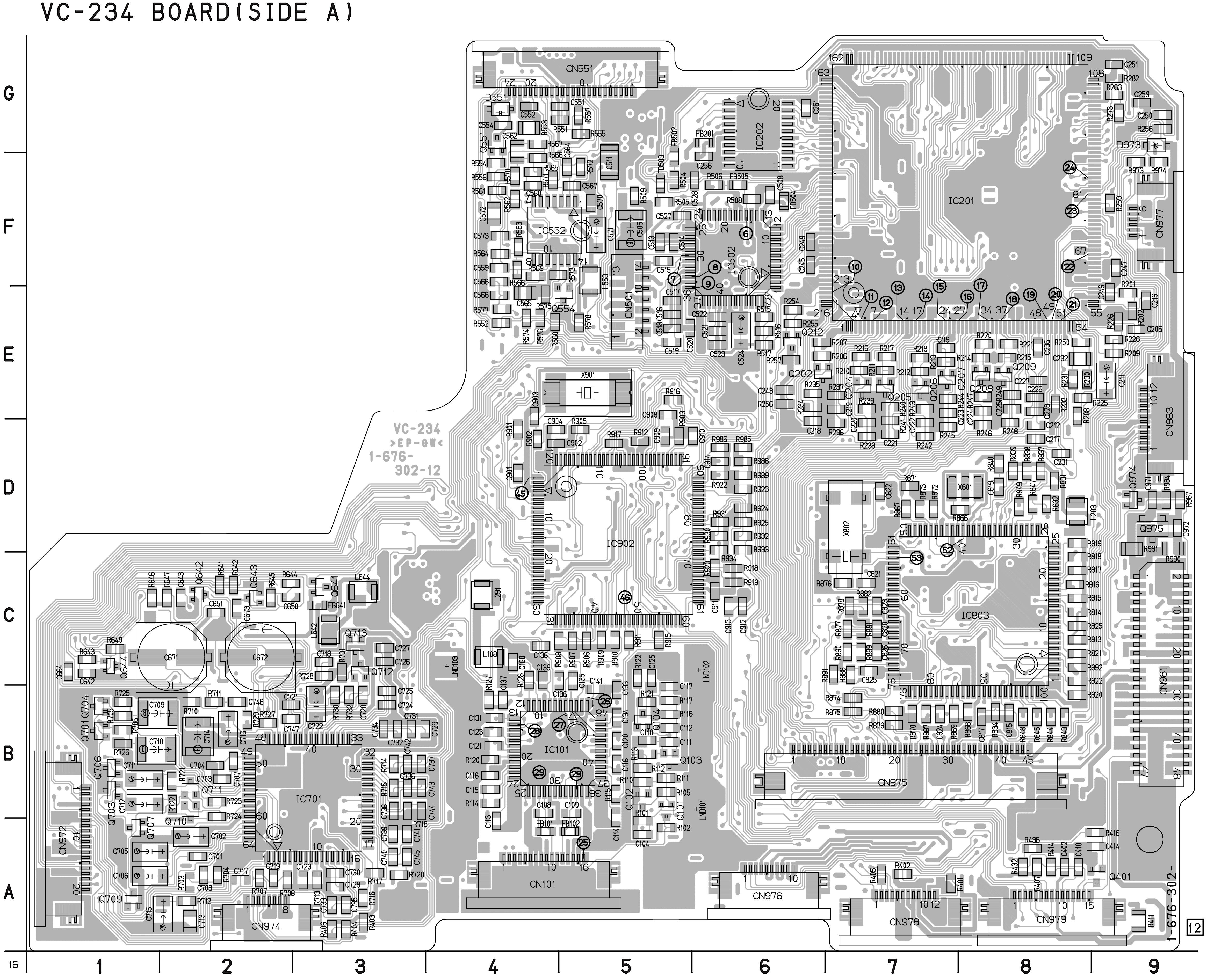
SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		⇛	
Capstan servo (speed and phase)		⇛	

PHOTO MODEL : CCD-TRV87/TRV87P
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517

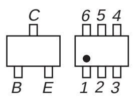
VC-234 (CAMERA, Y/C PROCESSOR, FOCUS/ZOOM MOTOR DRIVE, REC/PB AMP, LINE IN/OUT, MODE CONTROL, SERVO, HI CONTROL, AUDIO) PRINTED WIRING BOARD

— Ref. No. VC-234 Board; 1,000 Series —

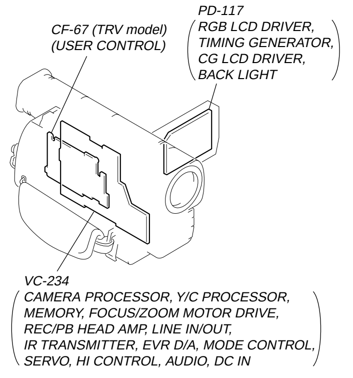

VC-234 BOARD(SIDE A)
G
F
E
D
C
B
A
1
2
3
4
5
6
7
8
9
16
CN551
IC552
IC202
IC502
CN501
IC201
CN977
CN983
X901
IC902
VC-234
>EP-GW<
1-676-
302-12
X802
X801
IC803
CN981
CN975
IC101
CN101
CN976
CN978
CN979
IC701
CN974
CN972
C671
C672
Q401
1-676-302-
12

For printed wiring board
- Refer to page 4-98, 99 for location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.
- Chip parts

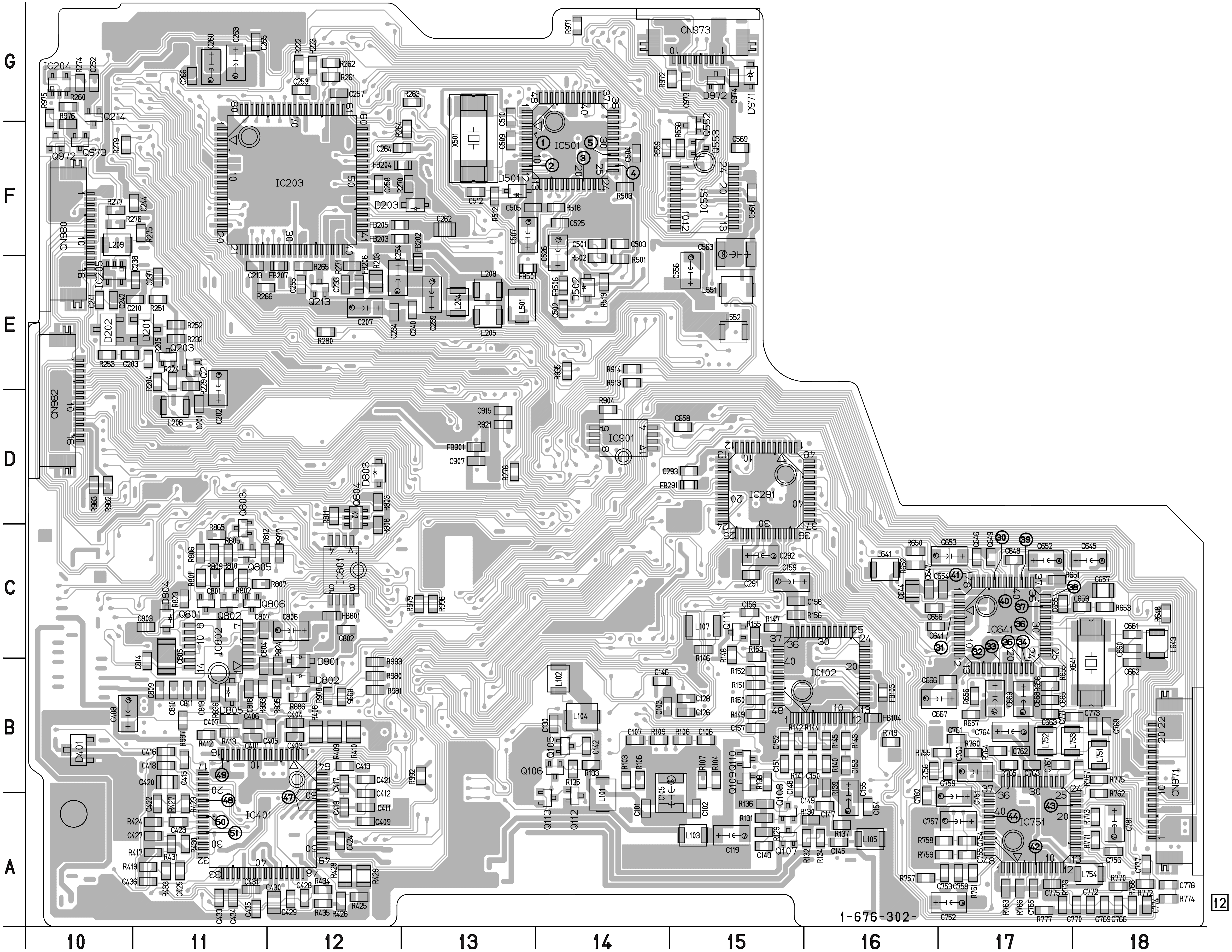
Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.


CF-67 (TRV model)
(USER CONTROL)
PD-117
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

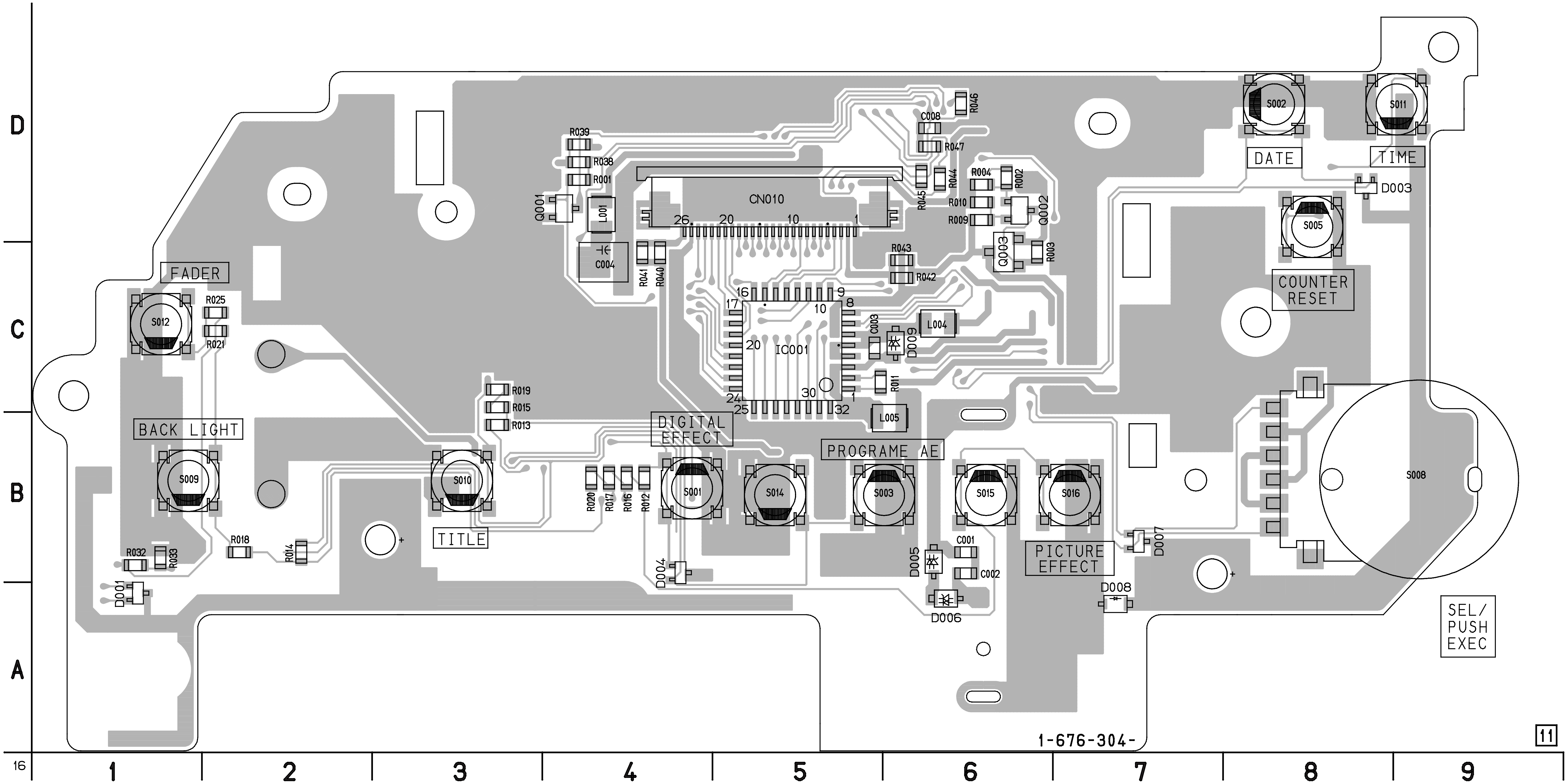
VC-234 BOARD(SIDE B)


G
F
E
D
C
B
A
10
11
12
13
14
15
16
17
18
IC203
IC204
IC205
IC501
IC551
IC901
IC291
IC801
IC802
IC401
IC102
IC641
IC751
CN973
CN980
CN982
CN971
X501
X641
D401
1-676-302-
12

CF-66 (USER CONTROL) PRINTED WIRING BOARD

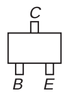
— Ref. No. CF-66 Board; 1,000 Series —

CF-66 BOARD(SIDE A) (TR MODEL)

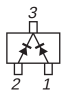

D
C
B
A
1
2
3
4
5
6
7
8
9
16
S002
S011
DATE
TIME
D003
S005
COUNTER RESET
CN010
26
20
10
1
R046
C008
R047
R039
R038
R001
Q001
L001
C004
R041
R040
R045
R044
R004
R002
R010
R009
Q002
R043
R042
Q003
R003
FADER
S012
R025
R021
16
9
17
8
10
20
IC001
24
25
30
32
1
C003
D009
L004
R011
L005
R019
R015
R013
DIGITAL EFFECT
PROGRAME AE
BACK LIGHT
S009
S010
R020
R017
R016
R012
S001
S014
S003
S015
S016
S008
TITLE
R018
R014
R032
R033
D001
D004
D005
C001
C002
D006
PICTURE EFFECT
D007
D008
SEL/ PUSH EXEC
1-676-304-
11

For printed wiring board
- Refer to page 4-99 for location.
- Chip parts

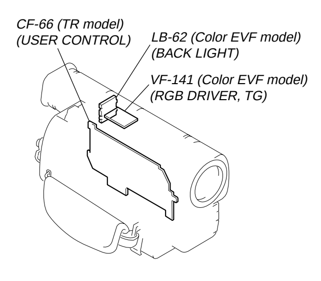
Transistor



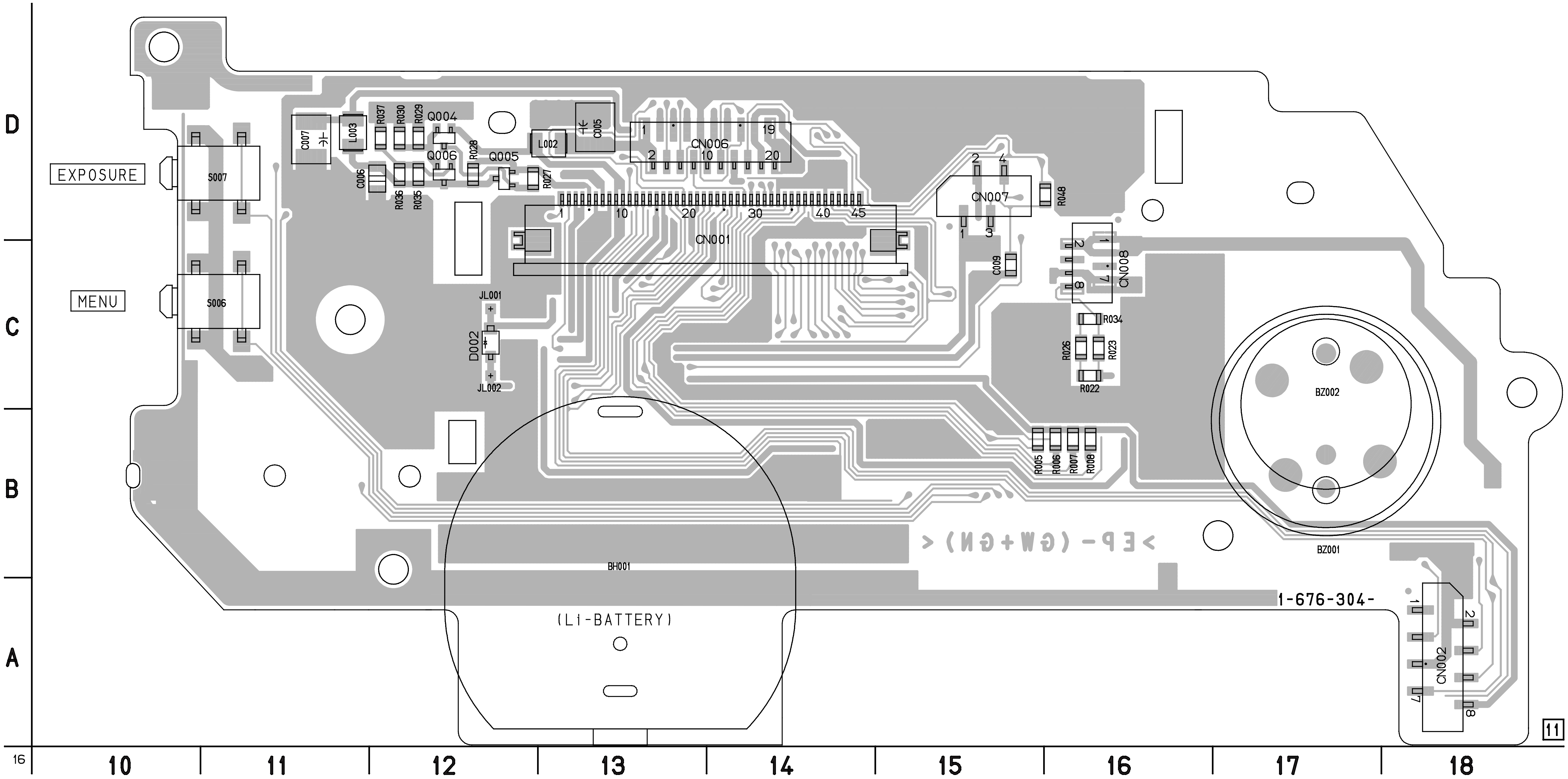
Diode



There are few cases that the part printed on this diagram isn’t mounted in this model.

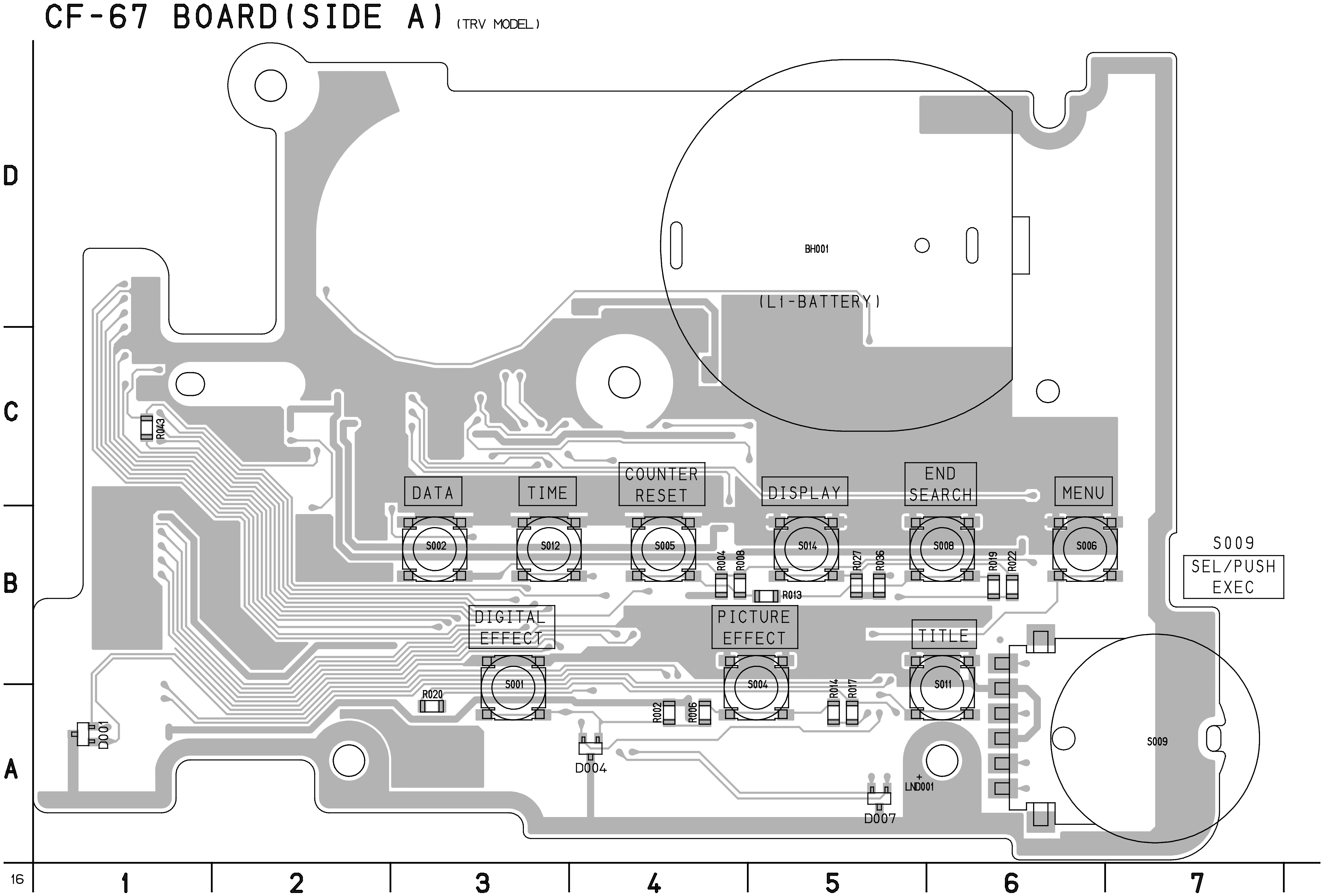

CF-66 (TR model)
(USER CONTROL)
LB-62 (Color EVF model)
(BACK LIGHT)
VF-141 (Color EVF model)
(RGB DRIVER, TG)

CF-66 BOARD(SIDE B) (TR MODEL)


D
C
B
A
EXPOSURE
MENU
S007
S006
C007
L003
R037
R030
R029
Q004
Q006
R028
Q005
L002
C005
CN006
1
19
2
10
20
C006
R036
R035
R027
CN001
1
10
20
30
40
45
CN007
2
4
1
3
R048
C009
CN008
1
2
7
8
JL001
D002
JL002
R034
R026
R023
R022
R005
R006
R007
R008
BZ002
BZ001
BH001
(Li-BATTERY)
1-676-304-
CN002
1
2
7
8
11
16
10
11
12
13
14
15
16
17
18

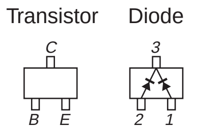
CF-67 (USER CONTROL) PRINTED WIRING BOARD

— Ref. No. CF-67 Board; 1,000 Series —

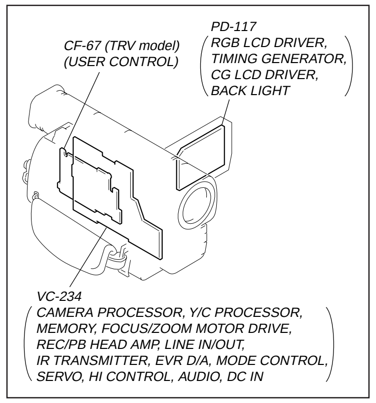

CF-67 BOARD(SIDE A) (TRV MODEL)
D
C
B
A
16
1
2
3
4
5
6
7
BH001
(Li-BATTERY)
R043
DATA
TIME
COUNTER RESET
DISPLAY
END SEARCH
MENU
S002
S012
S005
S014
S008
S006
R004
R008
R027
R036
R019
R022
R013
S009
SEL/PUSH EXEC
DIGITAL EFFECT
PICTURE EFFECT
TITLE
S001
S004
S011
R020
R002
R006
R014
R017
D001
D004
D007
LND001
+
S009

For printed wiring board

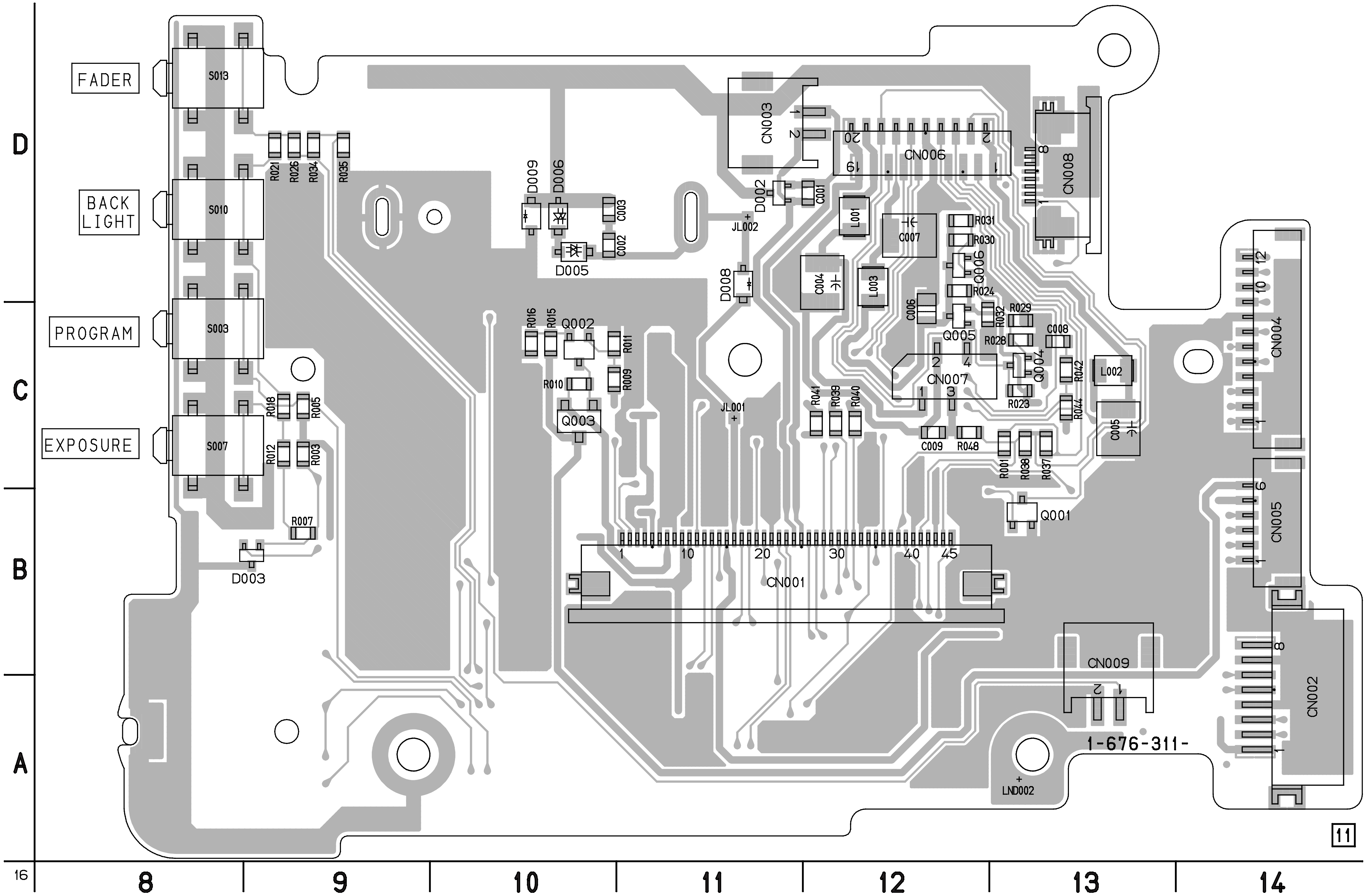
- Refer to page 4-100 for location.
- Chip parts


Transistor
Diode
C
B
E
3
2
1

There are few cases that the part printed on this diagram isn't mounted in this model.


CF-67 (TRV model)
(USER CONTROL)
PD-117
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

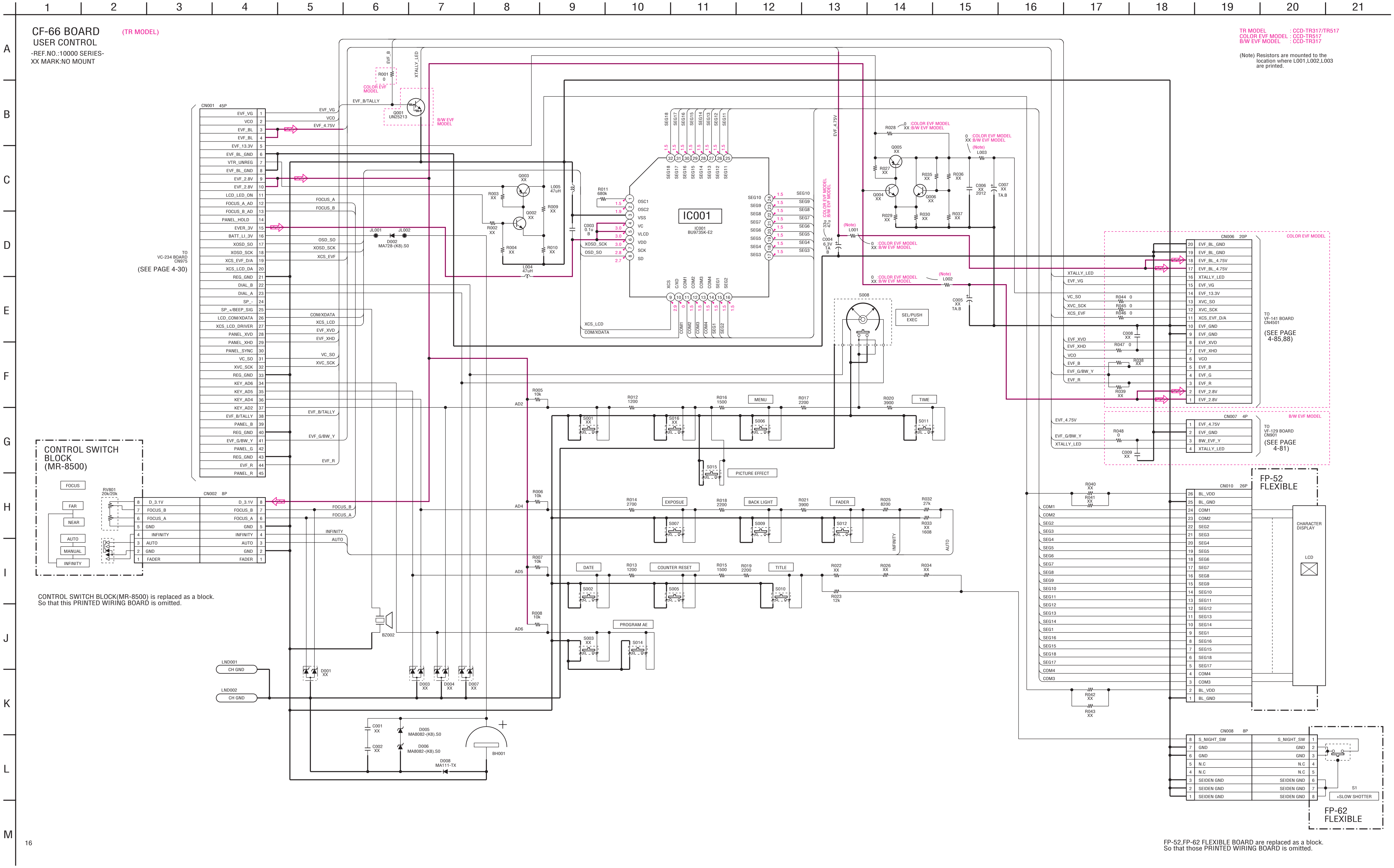
CF-67 BOARD(SIDE B) (TRV MODEL)


FADER
BACK LIGHT
PROGRAM
EXPOSURE
S013
S010
S003
S007
R021
R026
R034
R035
D009
D006
D005
C003
C002
D002
C001
JL002
D008
CN003
1
2
CN006
20
19
2
1
CN008
8
1
L001
C007
R031
R030
Q006
R024
C004
L003
C006
R032
R029
Q005
R028
C008
Q004
R042
L002
R023
R044
C005
CN007
2
4
1
3
R016
R015
Q002
R011
R010
R009
Q003
JL001
R041
R039
R040
C009
R048
R001
R038
R037
Q001
CN004
12
10
1
CN005
6
1
R018
R005
R012
R003
R007
D003
CN001
1
10
20
30
40
45
CN009
2
1
CN002
8
1
1-676-311-
LND002
D
C
B
A
8
9
10
11
12
13
14
16
11

CCD-TR317/TR517/TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/TRV87/TRV87P

For Schematic Diagram

• Refer to page 4-39 for printed wiring board.



CF-66 BOARD
USER CONTROL
(TR MODEL)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
CN001 45P
TO VC-234 BOARD CN975
(SEE PAGE 4-30)
CONTROL SWITCH BLOCK (MR-8500)
FOCUS
FAR
NEAR
AUTO
MANUAL
INFINITY
RV801 20k/20k
CN002 8P
IC001
IC001 BU9735K-E2
Q001 UN2S213
COLOR EVF MODEL
B/W EVF MODEL
Q002
Q003
Q004
Q005
Q006
L004 47uH
L005 47uH
S008
SEL/PUSH EXEC
MENU
TIME
PICTURE EFFECT
EXPOSURE
BACK LIGHT
FADER
DATE
COUNTER RESET
TITLE
PROGRAM AE
BZ002
BH001
D001
D002 MA728-(K8).S0
D005 MA8082-(K8).S0
D006 MA8082-(K8).S0
D008 MA111-TX
LND001 CH GND
LND002 CH GND
CN006 20P
TO VF-141 BOARD CN4501
(SEE PAGE 4-85,88)
CN007 4P
TO VF-129 BOARD CN901
(SEE PAGE 4-81)
CN010 26P
FP-52 FLEXIBLE
CHARACTER DISPLAY
LCD
CN008 8P
FP-62 FLEXIBLE
S1
+SLOW SHOTTER
16

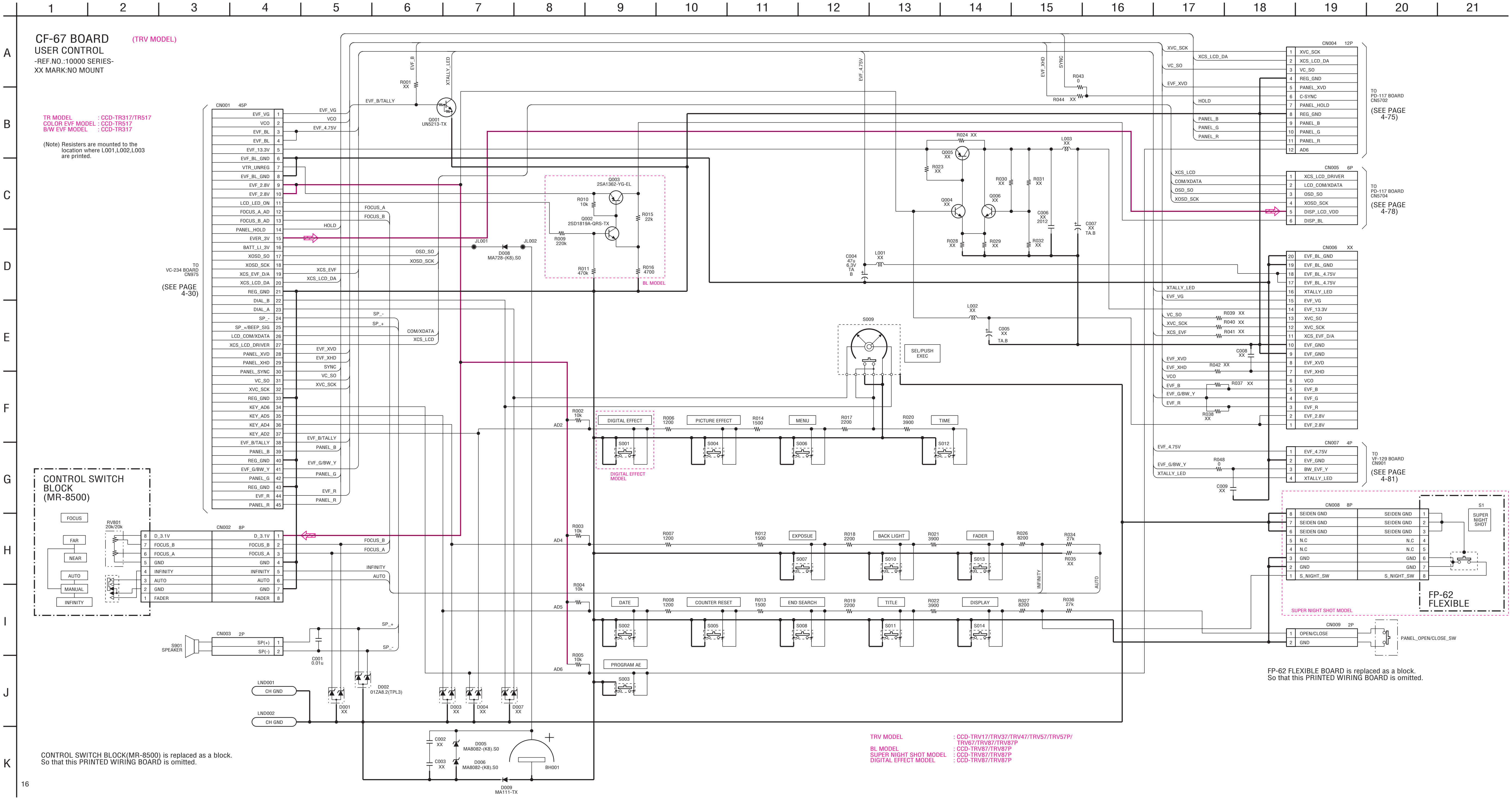
TR MODEL : CCD-TR317/TR517
COLOR EVF MODEL : CCD-TR517
B/W EVF MODEL : CCD-TR317

(Note) Resistors are mounted to the location where L001,L002,L003 are printed.

CONTROL SWITCH BLOCK(MR-8500) is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

FP-52,FP-62 FLEXIBLE BOARD are replaced as a block.
So that those PRINTED WIRING BOARD is omitted.

For Schematic Diagram
- Refer to page 4-43 for printed wiring board.


CF-67 BOARD (TRV MODEL)
USER CONTROL
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT

TR MODEL : CCD-TR317/TR517
COLOR EVF MODEL : CCD-TR517
B/W EVF MODEL : CCD-TR317

(Note) Resisters are mounted to the location where L001,L002,L003 are printed.

CONTROL SWITCH BLOCK(MR-8500) is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

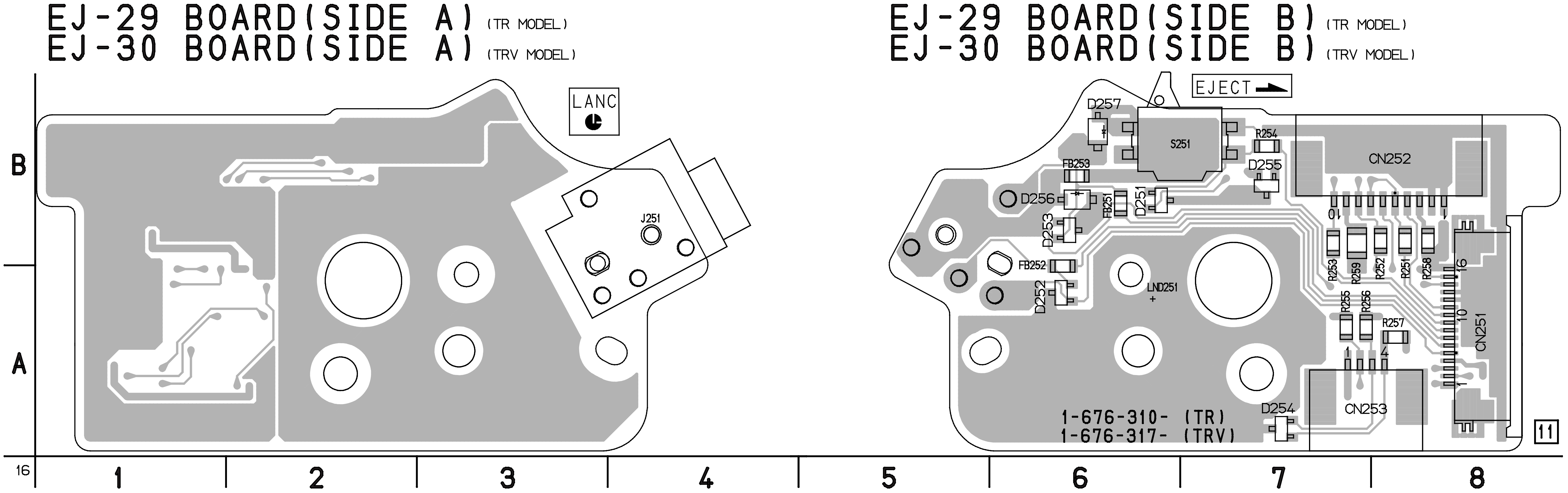
FP-62 FLEXIBLE BOARD is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
BL MODEL : CCD-TRV87/TRV87P
SUPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P
DIGITAL EFFECT MODEL : CCD-TRV87/TRV87P

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K
CN001 45P
TO VC-234 BOARD CN975 (SEE PAGE 4-30)
CN002 8P
CN003 2P
CONTROL SWITCH BLOCK (MR-8500)
FOCUS
FAR
NEAR
AUTO
MANUAL
INFINITY
RV801 20k/20k
S901 SPEAKER
C001 0.01u
LND001 CH GND
LND002 CH GND
D001 XX
D002 01ZA8.2(TPL3)
D003 XX
D004 XX
D007 XX
C002 XX
C003 XX
D005 MA8082-(K8).S0
D006 MA8082-(K8).S0
D009 MA111-TX
BH001
Q001 UN5213-TX
Q002 2SD1819A-QRS-TX
Q003 2SA1362-YG-EL
R009 220k
R010 10k
R011 470k
R015 22k
R016 4700
BL MODEL
JL001
JL002
D008 MA728-(K8).S0
R001 XX
AD2
AD4
AD5
AD6
R002 10k
R003 10k
R004 10k
R005 10k
DIGITAL EFFECT
PICTURE EFFECT
MENU
TIME
S001
S004
S006
S012
DIGITAL EFFECT MODEL
EXPOSURE
BACK LIGHT
FADER
S007
S010
S013
DATE
COUNTER RESET
END SEARCH
TITLE
DISPLAY
S002
S005
S008
S011
S014
PROGRAM AE
S003
S009
SEL/PUSH EXEC
Q004 XX
Q005 XX
Q006 XX
L001 XX
L002 XX
L003 XX
C004 47u 6.3V TA B
C005 XX TA B
C006 XX 2012
C007 XX TA B
CN004 12P
TO PD-117 BOARD CN5702 (SEE PAGE 4-75)
CN005 6P
TO PD-117 BOARD CN5704 (SEE PAGE 4-78)
CN006 XX
CN007 4P
TO VF-129 BOARD CN901 (SEE PAGE 4-81)
CN008 8P
S1 SUPER NIGHT SHOT
FP-62 FLEXIBLE
SUPER NIGHT SHOT MODEL
CN009 2P
PANEL_OPEN/CLOSE_SW
16

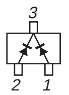
EJ-29/30 (LANC CONNECTOR), SS-9700 (START/STOP SWITCH) PRINTED WIRING BOARDS

— Ref. No. EJ-29/30 Board; 1,000 Series —

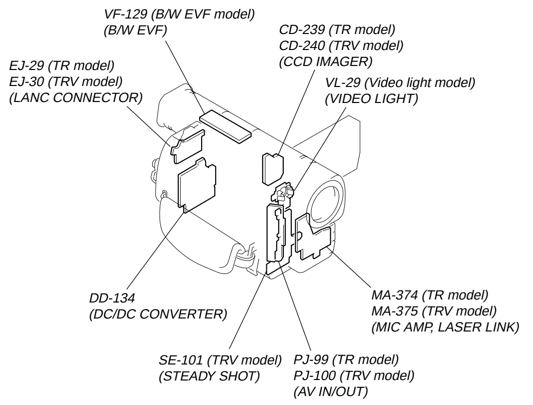

EJ-29 BOARD(SIDE A) (TR MODEL)
EJ-30 BOARD(SIDE A) (TRV MODEL)
EJ-29 BOARD(SIDE B) (TR MODEL)
EJ-30 BOARD(SIDE B) (TRV MODEL)
LANC
J251
EJECT
D257
S251
R254
D255
CN252
FB253
D256
FB251
D251
D253
FB252
D252
LND251
R253
R259
R252
R251
R258
R255
R256
R257
CN251
CN253
D254
1-676-310- (TR)
1-676-317- (TRV)
11
B
A
16
1
2
3
4
5
6
7
8

For printed wiring board
- Refer to page 4-100 for location.
- Chip parts

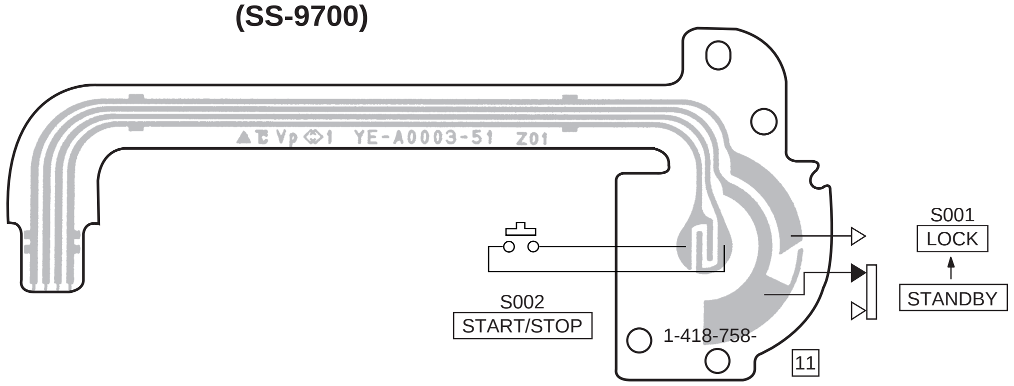
Diode

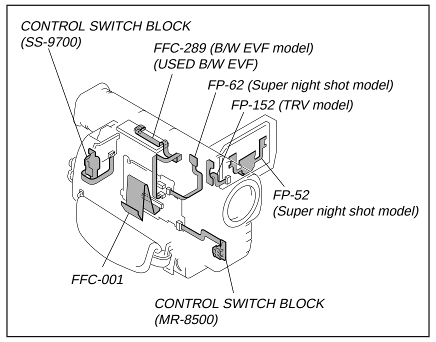


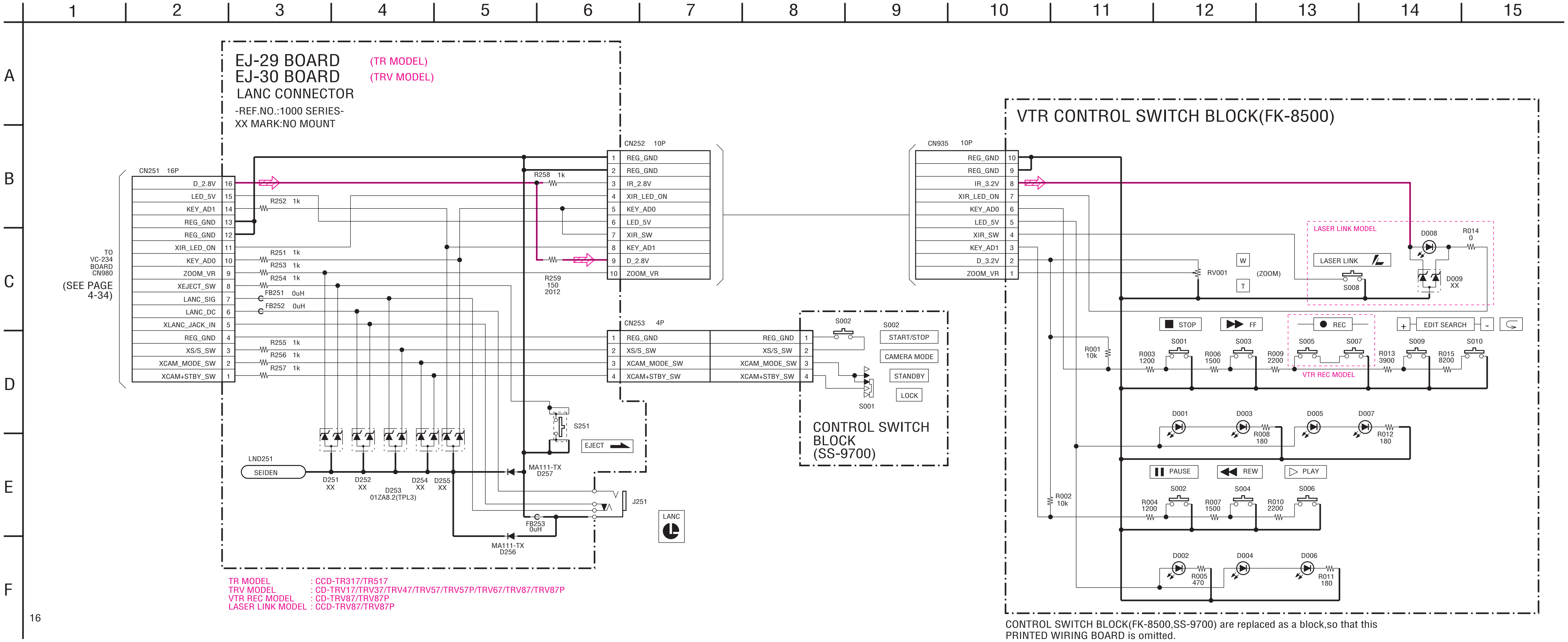
There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

CONTROL SWITCH BLOCK
(SS-9700)


YE-A0003-51 Z01
S001
LOCK
STANDBY
S002
START/STOP
1-418-758-
11


CONTROL SWITCH BLOCK
(SS-9700)
FFC-289 (B/W EVF model)
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(Super night shot model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)

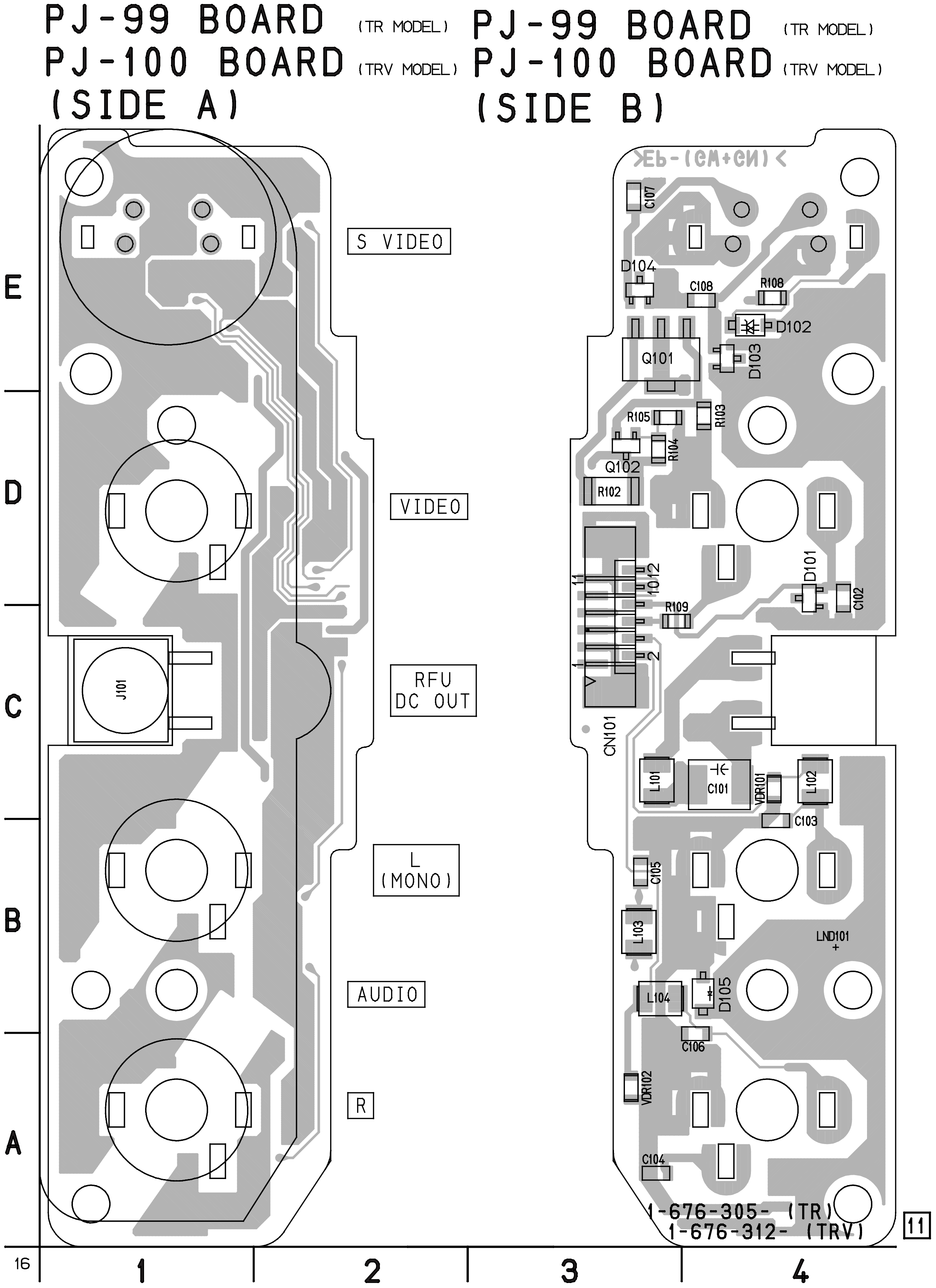

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
LANC CONNECTOR
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
CN251 16P
D_2.8V 16
LED_5V 15
KEY_AD1 14
REG_GND 13
REG_GND 12
XIR_LED_ON 11
KEY_AD0 10
ZOOM_VR 9
XEJECT_SW 8
LANC_SIG 7
LANC_DC 6
XLANC_JACK_IN 5
REG_GND 4
XS/S_SW 3
XCAM_MODE_SW 2
XCAM+STBY_SW 1
TO VC-234 BOARD CN980
(SEE PAGE 4-34)
R252 1k
R251 1k
R253 1k
R254 1k
FB251 0uH
FB252 0uH
R255 1k
R256 1k
R257 1k
R258 1k
R259 150 2012
CN252 10P
1 REG_GND
2 REG_GND
3 IR_2.8V
4 XIR_LED_ON
5 KEY_AD0
6 LED_5V
7 XIR_SW
8 KEY_AD1
9 D_2.8V
10 ZOOM_VR
CN253 4P
1 REG_GND
2 XS/S_SW
3 XCAM_MODE_SW
4 XCAM+STBY_SW
S251
EJECT
LND251
SEIDEN
D251 XX
D252 XX
D253 01ZA8.2(TPL3)
D254 XX
D255 XX
MA111-TX D257
MA111-TX D256
FB253 0uH
J251
LANC
S002
START/STOP
CAMERA MODE
STANDBY
LOCK
S001
CONTROL SWITCH BLOCK (SS-9700)
VTR CONTROL SWITCH BLOCK(FK-8500)
CN935 10P
REG_GND 10
REG_GND 9
IR_3.2V 8
XIR_LED_ON 7
KEY_AD0 6
LED_5V 5
XIR_SW 4
KEY_AD1 3
D_3.2V 2
ZOOM_VR 1
RV001
(ZOOM)
W
T
LASER LINK MODEL
LASER LINK
S008
D008
R014 0
D009 XX
STOP
FF
REC
EDIT SEARCH
+
-
S001
S003
S005
S007
S009
S010
R001 10k
R003 1200
R006 1500
R009 2200
R013 3900
R015 8200
VTR REC MODEL
D001
D003
D005
D007
R008 180
R012 180
PAUSE
REW
PLAY
S002
S004
S006
R002 10k
R004 1200
R007 1500
R010 2200
D002
D004
D006
R005 470
R011 180
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
VTR REC MODEL : CD-TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P

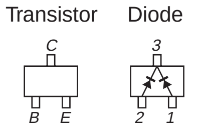
CONTROL SWITCH BLOCK(FK-8500,SS-9700) are replaced as a block,so that this PRINTED WIRING BOARD is omitted.

PJ-99/100 (AV IN/OUT) PRINTED WIRING BOARD

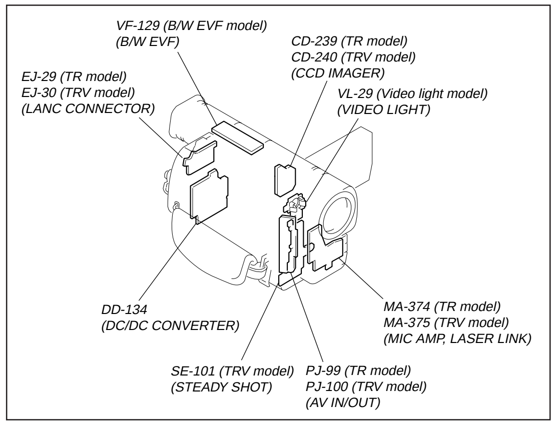
— Ref. No. PJ-99/100 Board; 1,000 Series —


PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
(SIDE A)
PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
(SIDE B)
S VIDEO
VIDEO
RFU DC OUT
L (MONO)
AUDIO
R
E
D
C
B
A
16
1
2
3
4
J101
C107
D104
C108
R108
D102
Q101
D103
R105
R103
R104
Q102
R102
D101
C102
R109
CN101
L101
C101
VDR101
L102
C103
C105
L103
LND101
L104
D105
C106
VDR102
C104
1-676-305- (TR)
1-676-312- (TRV)
11

For printed wiring board
- Refer to page 4-100 for location.
- Chip parts


Transistor
Diode
C
B
E
3
2
1

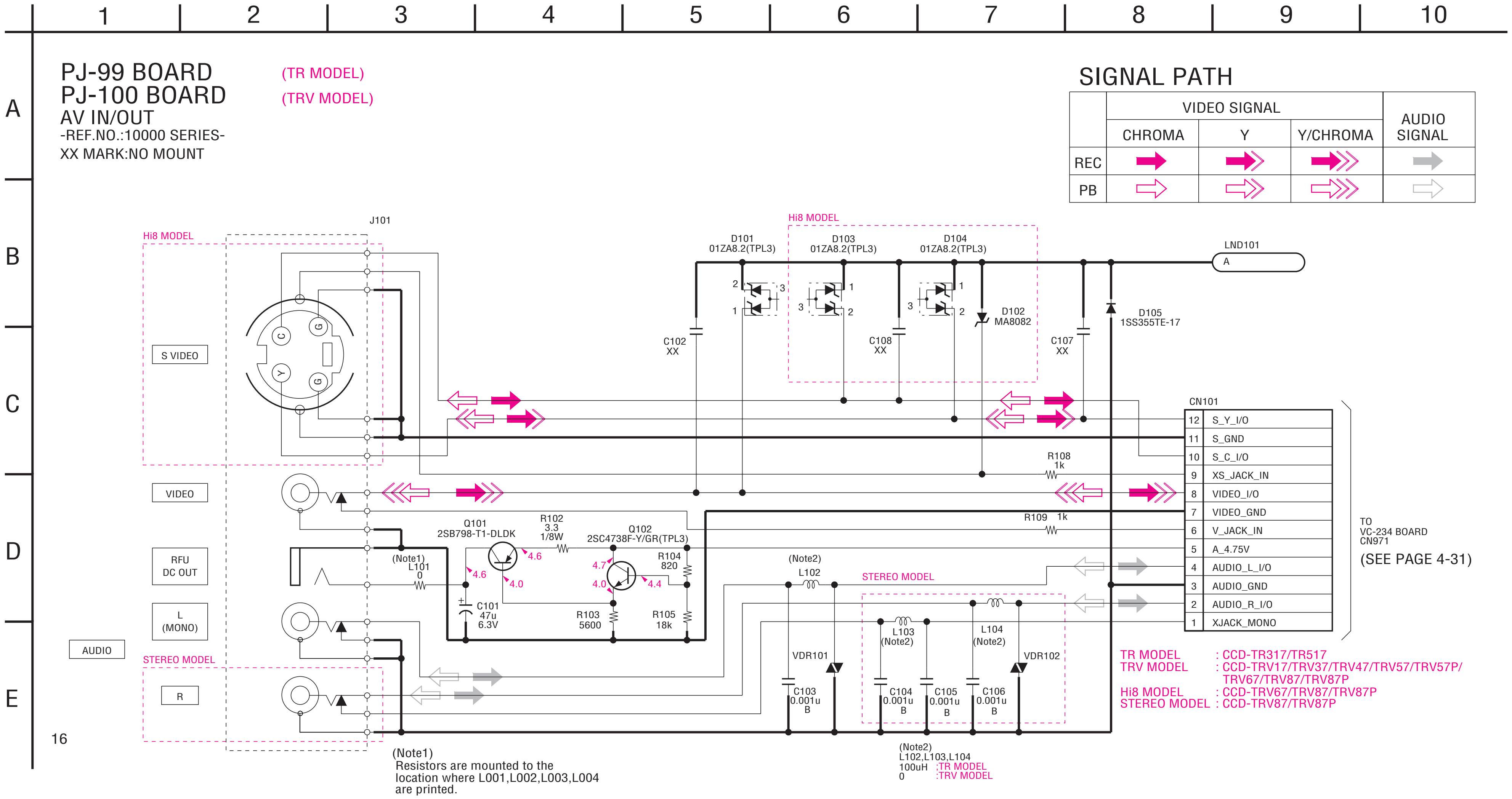
There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
AV IN/OUT
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
Hi8 MODEL
J101
S VIDEO
C
G
Y
G
VIDEO
RFU
DC OUT
L
(MONO)
AUDIO
STEREO MODEL
R
16
D101
01ZA8.2(TPL3)
Hi8 MODEL
D103
01ZA8.2(TPL3)
D104
01ZA8.2(TPL3)
D102
MA8082
C102
XX
C108
XX
C107
XX
D105
1SS355TE-17
LND101
A
R108
1k
R109 1k
Q101
2SB798-T1-DLDK
R102
3.3
1/8W
Q102
2SC4738F-Y/GR(TPL3)
R104
820
(Note1)
L101
0
4.6
4.6
4.0
4.7
4.0
4.4
C101
47u
6.3V
R103
5600
R105
18k
(Note2)
L102
STEREO MODEL
L103
(Note2)
L104
(Note2)
VDR101
VDR102
C103
0.001u
B
C104
0.001u
B
C105
0.001u
B
C106
0.001u
B
CN101
12 S_Y_I/O
11 S_GND
10 S_C_I/O
9 XS_JACK_IN
8 VIDEO_I/O
7 VIDEO_GND
6 V_JACK_IN
5 A_4.75V
4 AUDIO_L_I/O
3 AUDIO_GND
2 AUDIO_R_I/O
1 XJACK_MONO
TO
VC-234 BOARD
CN971
(SEE PAGE 4-31)

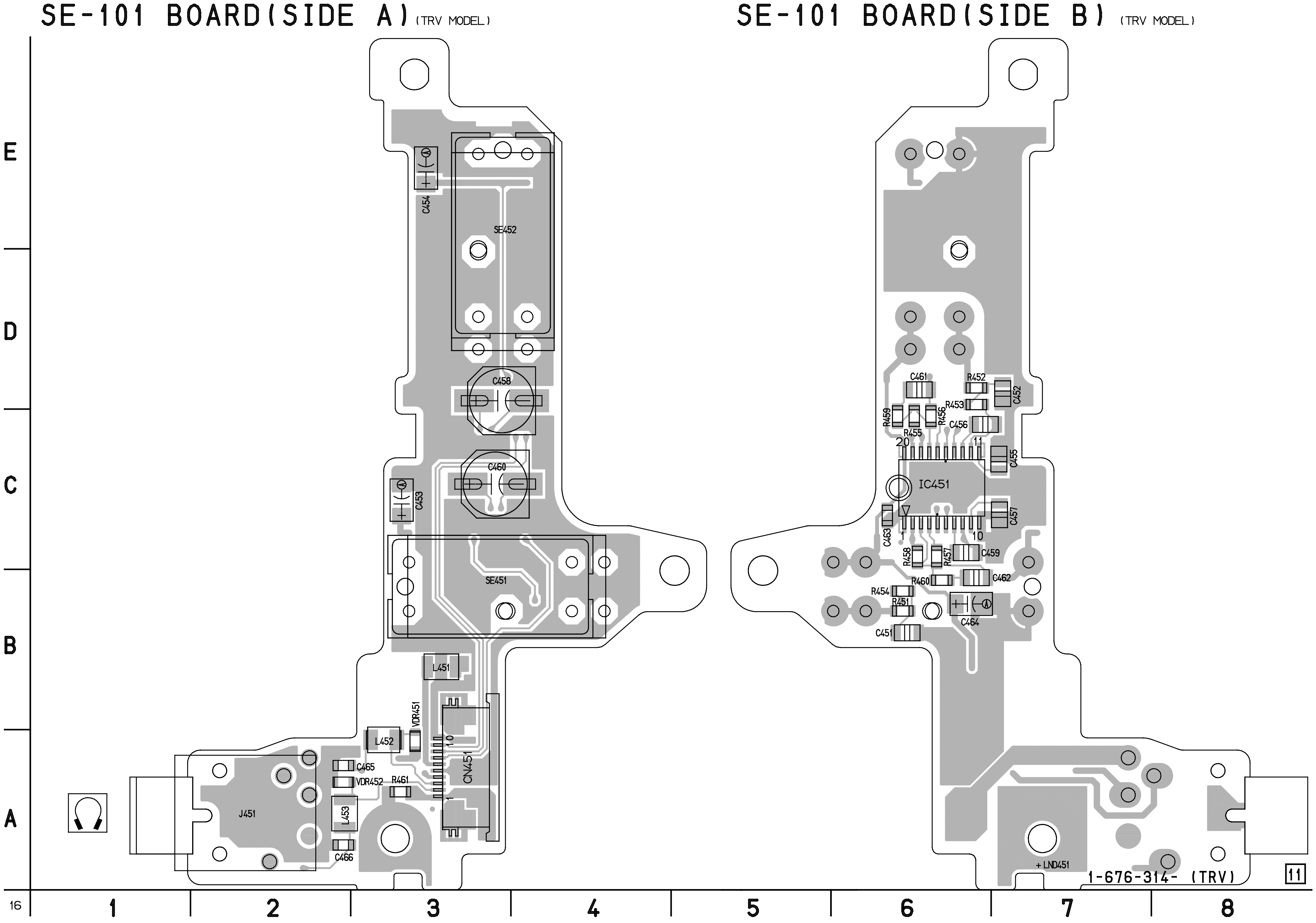
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
Hi8 MODEL : CCD-TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P

(Note1)
Resistors are mounted to the location where L001,L002,L003,L004 are printed.

(Note2)
L102,L103,L104
100uH :TR MODEL
0 :TRV MODEL

SE-101 (STEADY SHOT) PRINTED WIRING BOARD

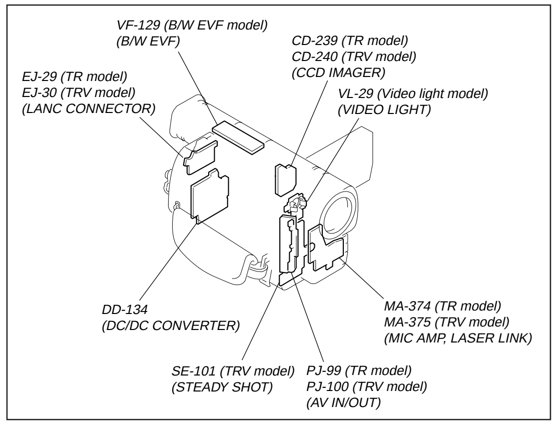
— Ref. No. SE-101 Board; 1,000 Series —


SE-101 BOARD(SIDE A)(TRV MODEL)
SE-101 BOARD(SIDE B)(TRV MODEL)
E
D
C
B
A
16
1
2
3
4
5
6
7
8
C454
SE452
C458
C460
C453
SE451
L451
VDR451
L452
10
CN451
1
C465
VDR452
R461
J451
L453
C466
C461
R452
C452
R453
R459
R456
R455
C456
20
11
C455
IC451
C457
C463
1
10
R458
R457
C459
R460
C462
R454
R451
C464
C451
+ LND451
1-676-314- (TRV)
11

For printed wiring board

- Refer to page 4-100 for location.

There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

1 2 3 4 5 6 7 8 9 10

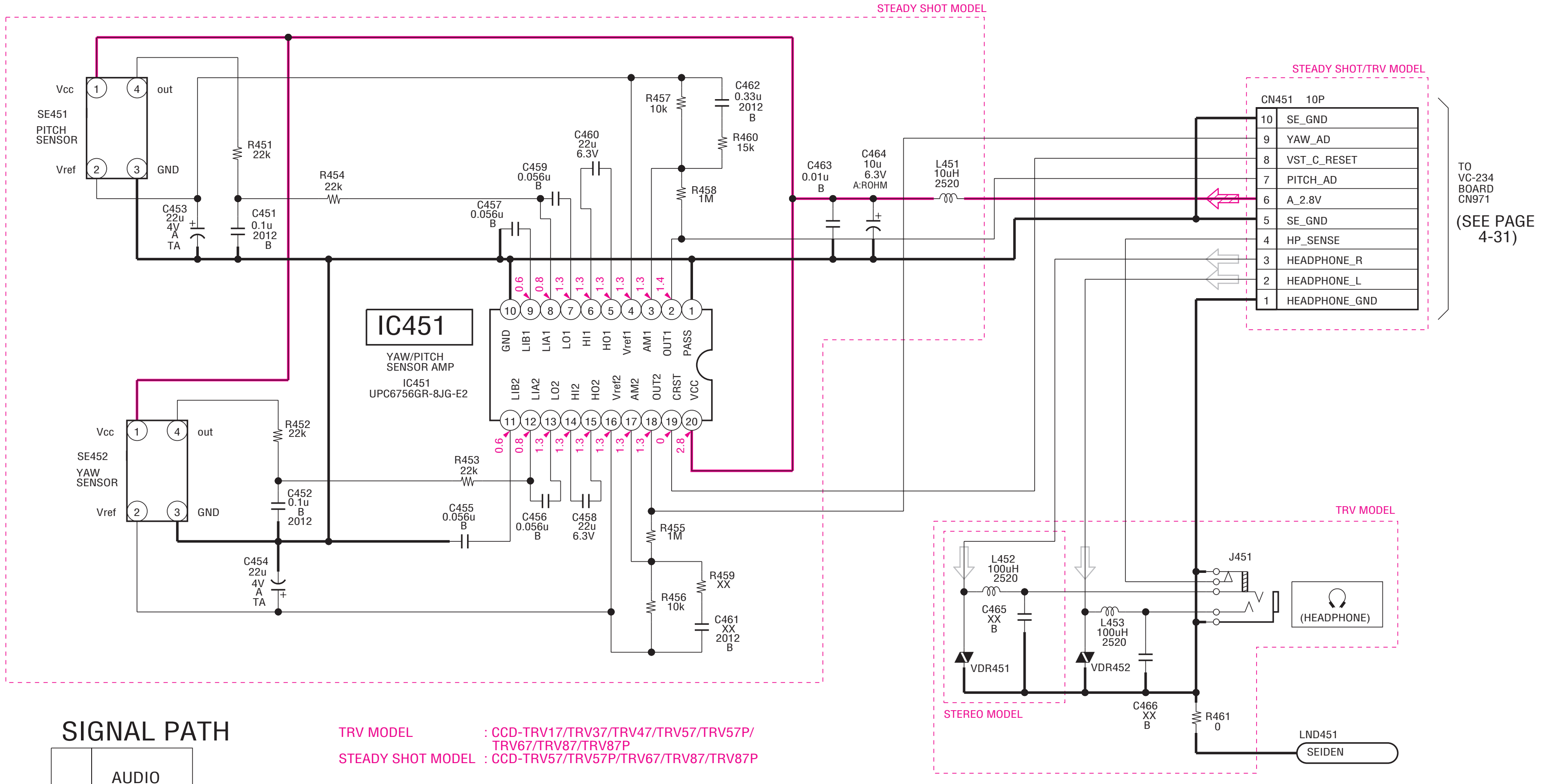
A B C D E F G

SE-101 BOARD (TRV MODEL)

STEADY SHOT

-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE


STEADY SHOT MODEL
SE451
PITCH SENSOR
Vcc
out
Vref
GND
R451 22k
R454 22k
C453 22u 4V A TA
C451 0.1u 2012 B
C459 0.056u B
C457 0.056u B
C460 22u 6.3V
R457 10k
C462 0.33u 2012 B
R460 15k
R458 1M
C463 0.01u B
C464 10u 6.3V A:ROHM
L451 10uH 2520
IC451
YAW/PITCH SENSOR AMP
IC451 UPC6756GR-8JG-E2
GND LIB1 LIA1 LO1 HI1 HO1 Vref1 AM1 OUT1 PASS
LIB2 LIA2 LO2 HI2 HO2 Vref2 AM2 OUT2 CRST VCC
0.6 0.8 1.3 1.3 1.3 1.3 1.3 1.4
0.6 0.8 1.3 1.3 1.3 1.3 1.3 1.3 0 2.8
SE452
YAW SENSOR
R452 22k
R453 22k
C452 0.1u B 2012
C454 22u 4V A TA
C455 0.056u B
C456 0.056u B
C458 22u 6.3V
R455 1M
R459 XX
R456 10k
C461 XX 2012 B
STEADY SHOT/TRV MODEL
CN451 10P
10 SE_GND
9 YAW_AD
8 VST_C_RESET
7 PITCH_AD
6 A_2.8V
5 SE_GND
4 HP_SENSE
3 HEADPHONE_R
2 HEADPHONE_L
1 HEADPHONE_GND
TO VC-234 BOARD CN971
(SEE PAGE 4-31)
TRV MODEL
J451
(HEADPHONE)
L452 100uH 2520
C465 XX B
VDR451
L453 100uH 2520
VDR452
C466 XX B
R461 0
STEREO MODEL
LND451
SEIDEN

SIGNAL PATH

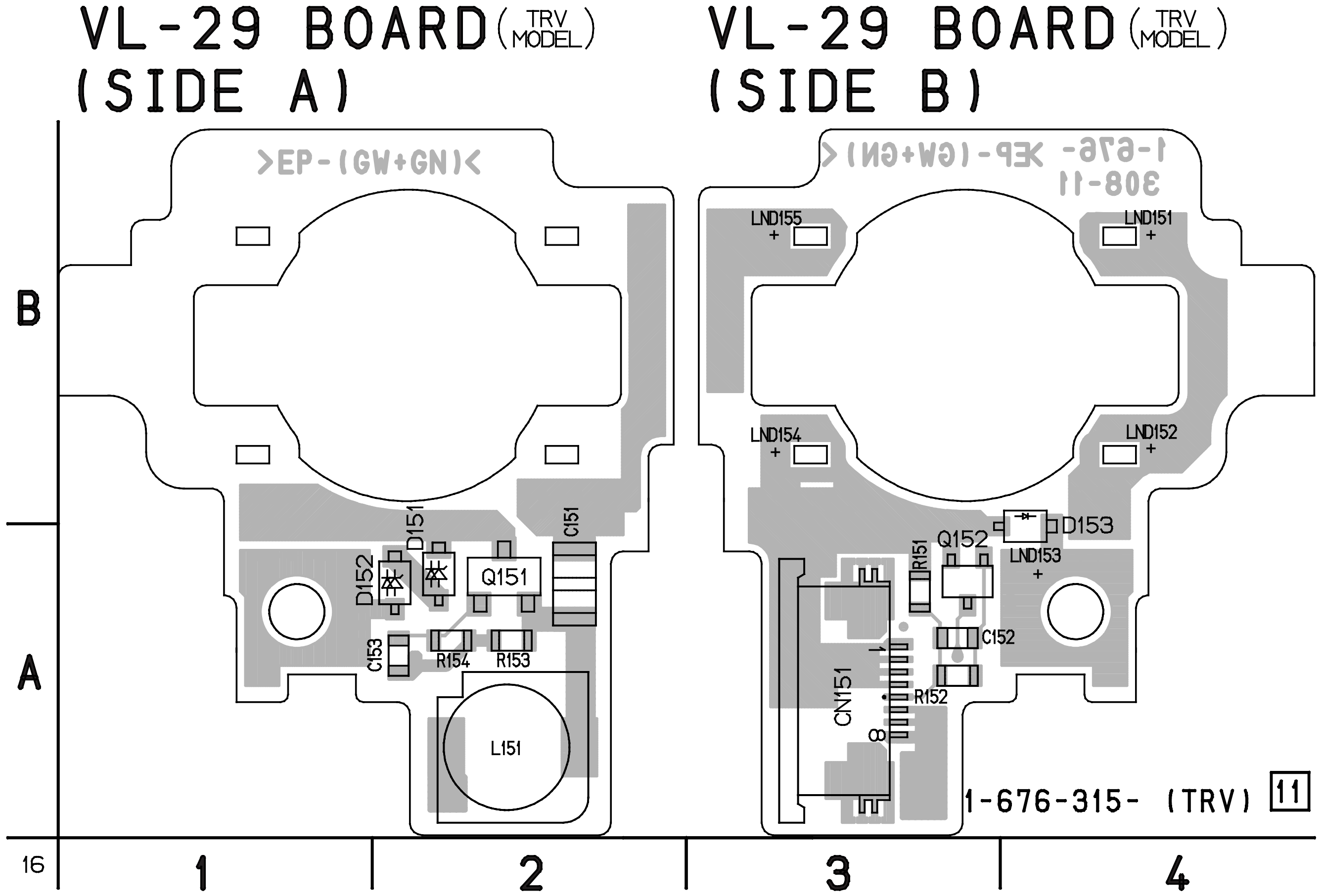
	AUDIO SIGNAL
REC	➡
PB	⇨

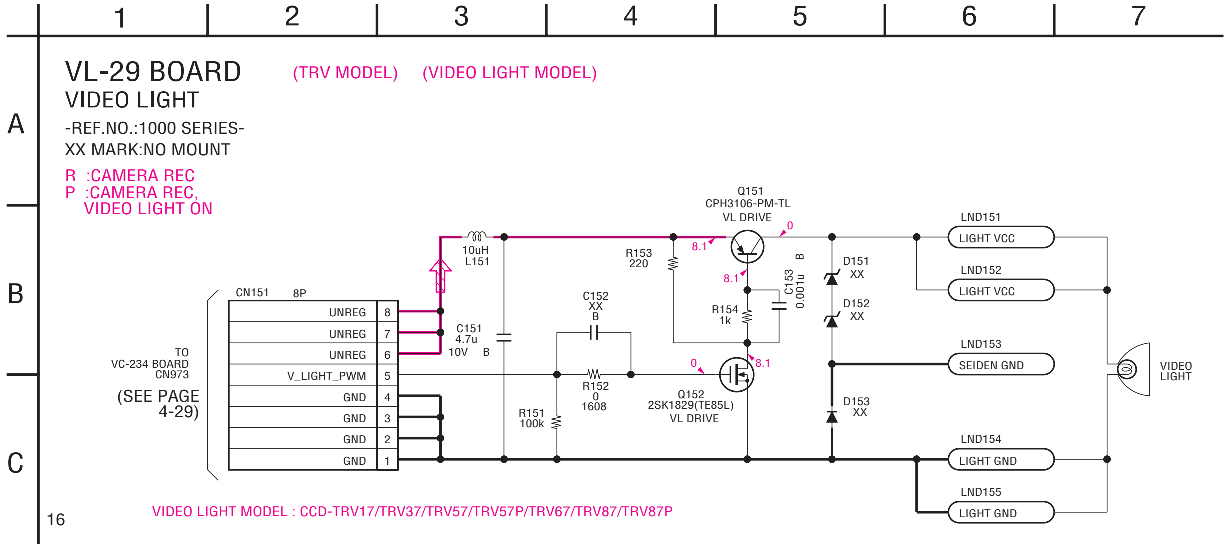
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEADY SHOT MODEL : CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P

16

VL-29 (VIDEO LIGHT) PRINTED WIRING BOARD

— Ref. No. VL-29 Board; 1,000 Series —

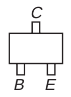

VL-29 BOARD (TRV MODEL) (SIDE A)
VL-29 BOARD (TRV MODEL) (SIDE B)
>EP-(GW+GN)<
1-676-308-11
LND155
LND151
LND154
LND152
LND153
D151
D152
D153
Q151
Q152
C151
C152
C153
R151
R152
R153
R154
L151
CN151
1
8
1-676-315- (TRV) 11
A
B
16
1
2
3
4


1
2
3
4
5
6
7
A
B
C
VL-29 BOARD
VIDEO LIGHT
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
(TRV MODEL)
(VIDEO LIGHT MODEL)
R :CAMERA REC
P :CAMERA REC, VIDEO LIGHT ON
TO VC-234 BOARD CN973
(SEE PAGE 4-29)
CN151 8P
UNREG 8
UNREG 7
UNREG 6
V_LIGHT_PWM 5
GND 4
GND 3
GND 2
GND 1
10uH L151
C151 4.7u 10V B
R151 100k
C152 XX B
R152 0 1608
R153 220
Q151 CPH3106-PM-TL VL DRIVE
Q152 2SK1829(TE85L) VL DRIVE
R154 1k
C153 0.001u B
8.1
8.1
0
0
8.1
D151 XX
D152 XX
D153 XX
LND151 LIGHT VCC
LND152 LIGHT VCC
LND153 SEIDEN GND
LND154 LIGHT GND
LND155 LIGHT GND
VIDEO LIGHT
16

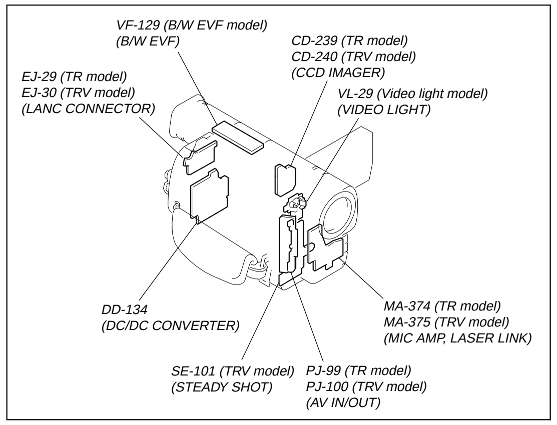
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P

For printed wiring board
- Refer to page 4-101 for location.
- Chip parts

Transistor

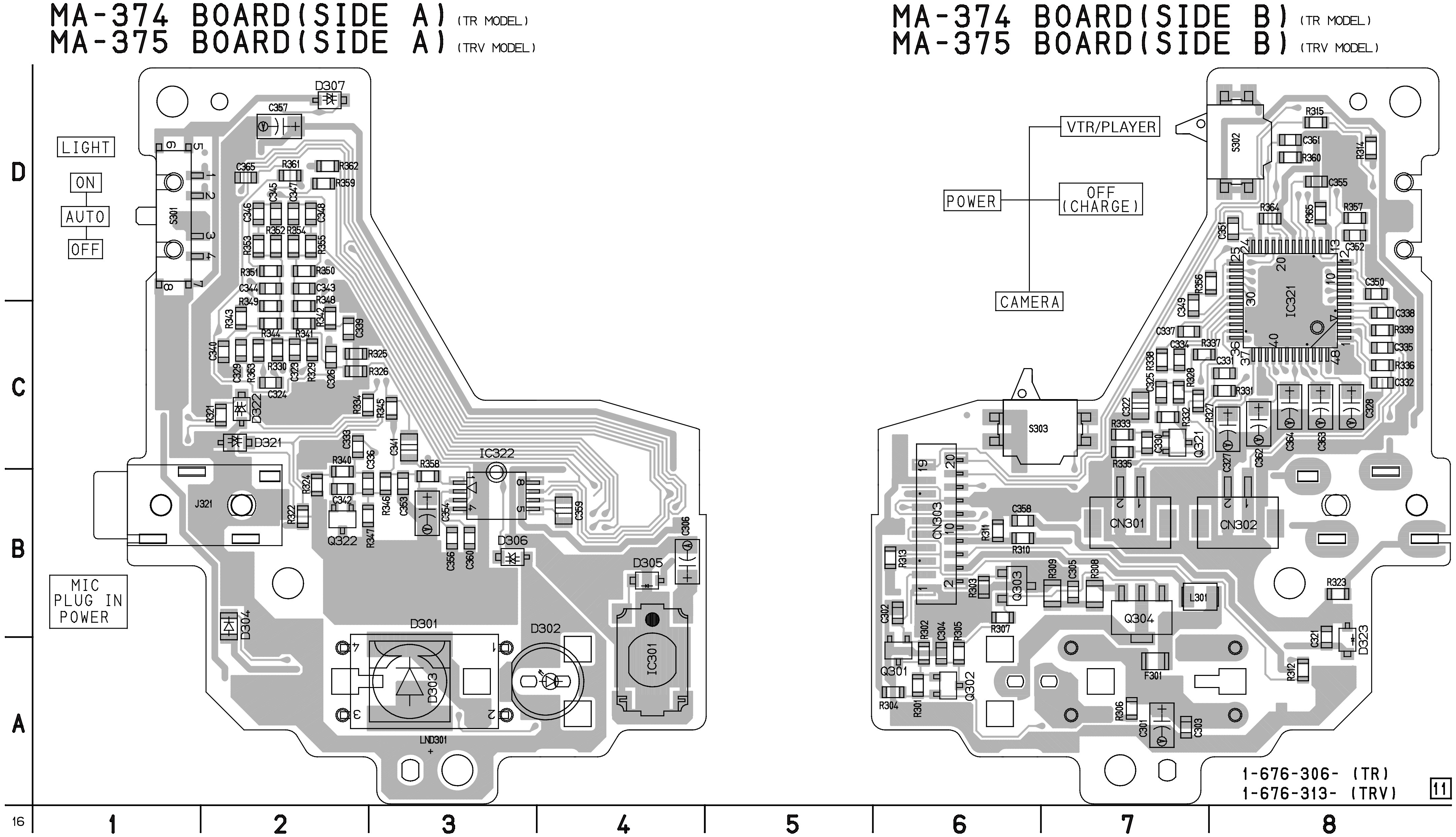


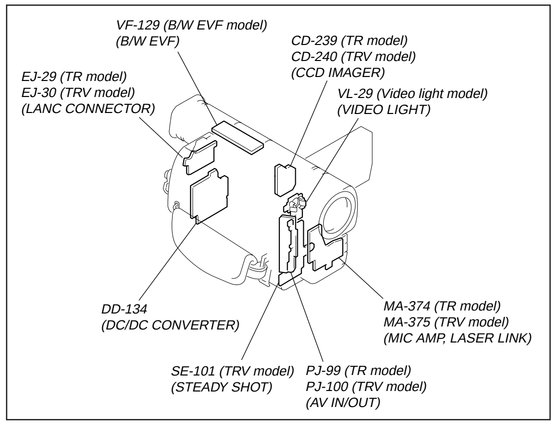
There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

MA-374/375 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-374/375 Board; 1,000 Series —

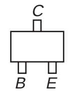

MA-374 BOARD(SIDE A) (TR MODEL)
MA-375 BOARD(SIDE A) (TRV MODEL)
MA-374 BOARD(SIDE B) (TR MODEL)
MA-375 BOARD(SIDE B) (TRV MODEL)
LIGHT
ON
AUTO
OFF
S301
MIC PLUG IN POWER
J321
IC322
IC301
D301
D302
D303
D304
D305
D306
D307
D321
D322
Q322
LND301
VTR/PLAYER
POWER
OFF (CHARGE)
CAMERA
S302
S303
IC321
CN301
CN302
CN303
Q301
Q302
Q303
Q304
Q321
L301
F301
D323
1-676-306- (TR)
1-676-313- (TRV)
11
D
C
B
A
16
1
2
3
4
5
6
7
8


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For printed wiring board

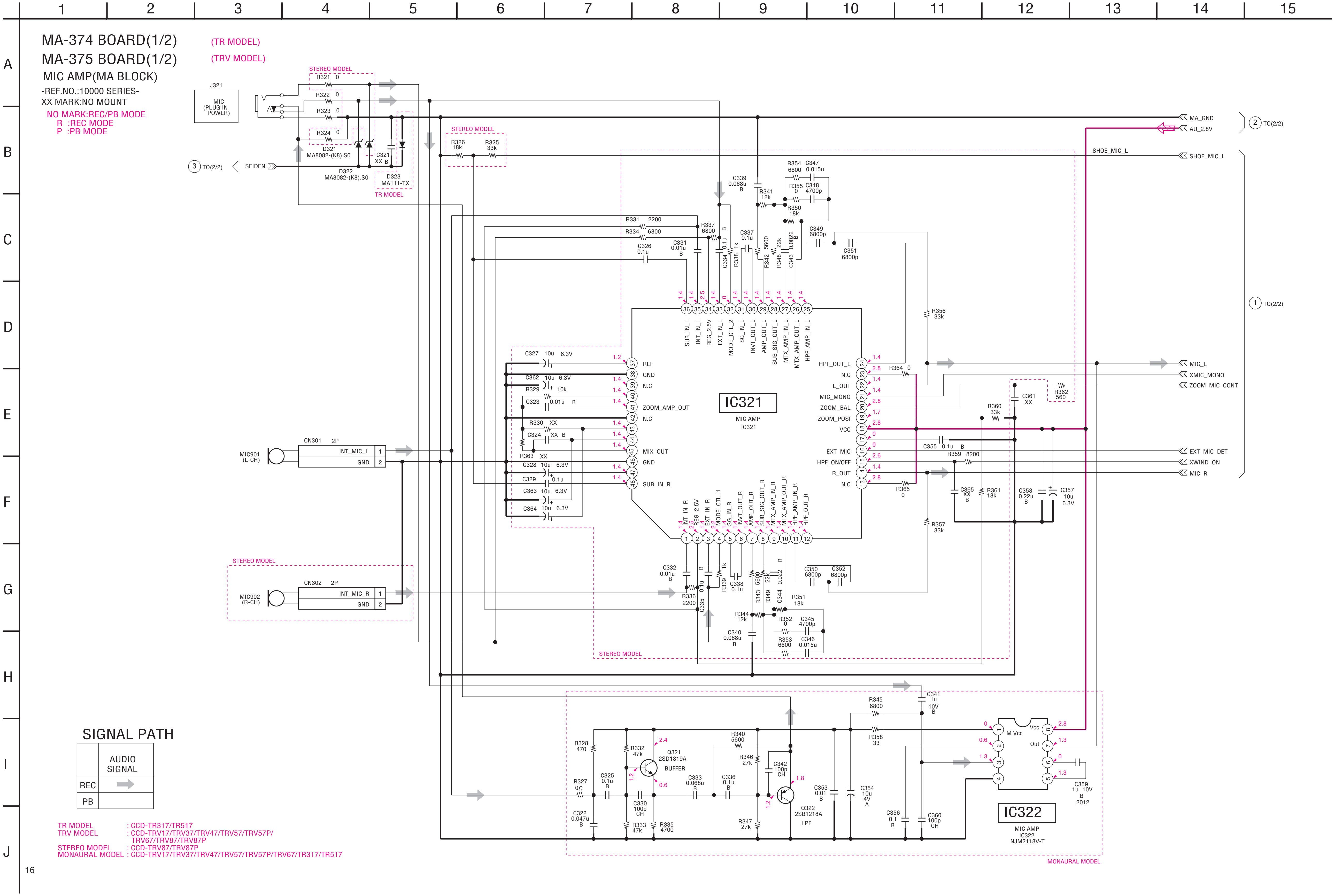
- Refer to page 4-101 for location.
- Chip parts

Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.

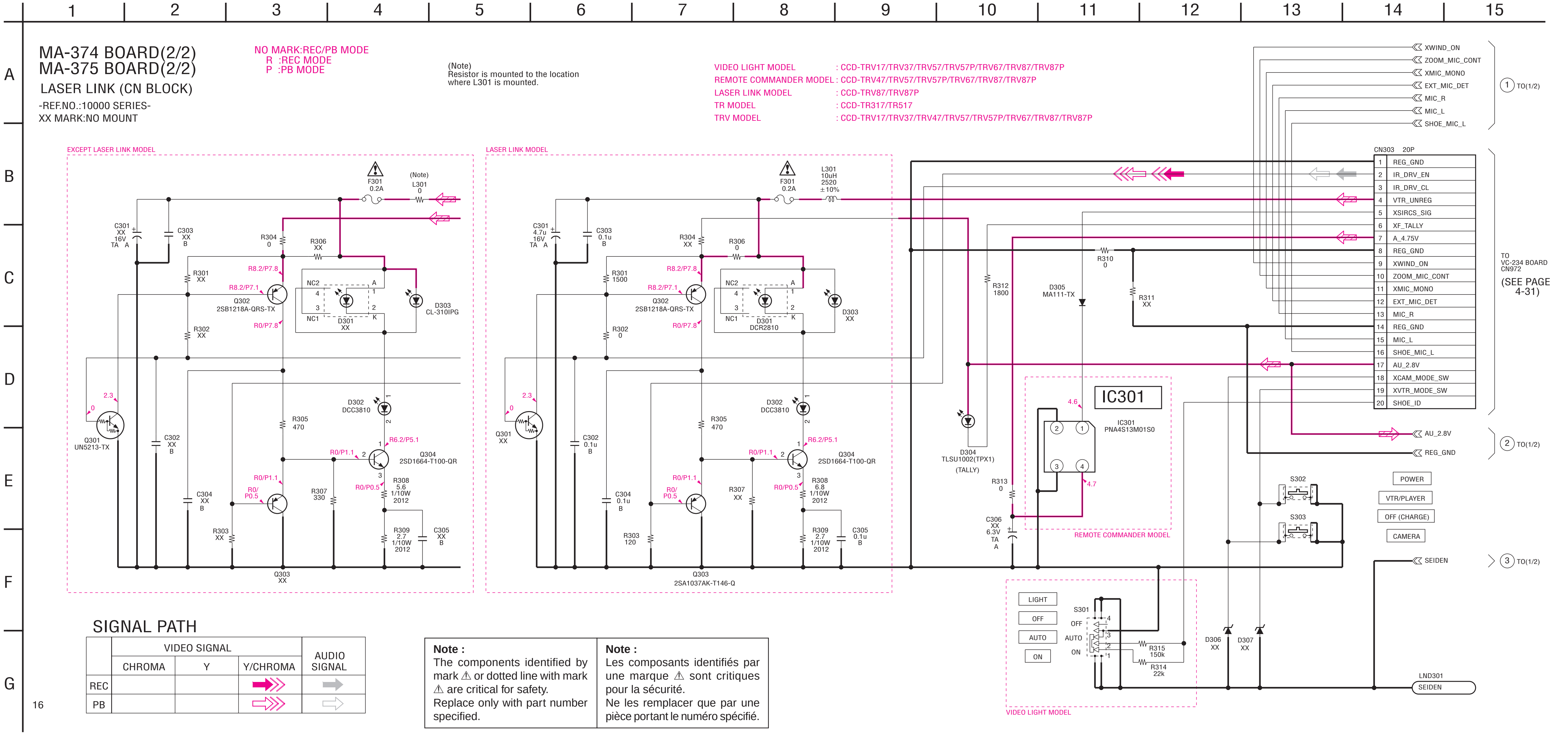
For Schematic Diagram
- Refer to page 4-65 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
MA-374 BOARD(1/2)
(TR MODEL)
MA-375 BOARD(1/2)
(TRV MODEL)
MIC AMP(MA BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
J321
MIC (PLUG IN POWER)
STEREO MODEL
R321 0
R322 0
R323 0
R324 0
D321 MA8082-(K8).S0
D322 MA8082-(K8).S0
C321 XX B
D323 MA111-TX
TR MODEL
3 TO(2/2)
SEIDEN
R326 18k
R325 33k
MIC901 (L-CH)
CN301 2P
INT_MIC_L
GND
MIC902 (R-CH)
CN302 2P
INT_MIC_R
GND
IC321
MIC AMP
IC321
REF
GND
N.C
ZOOM_AMP_OUT
N.C
MIX_OUT
GND
SUB_IN_R
SUB_IN_L
INT_IN_L
REG_2.5V
EXT_IN_L
MODE_CTL_2
SG_IN_L
INVT_OUT_L
AMP_OUT_L
SUB_SIG_OUT_L
MTX_AMP_IN_L
MTX_AMP_OUT_L
HPF_AMP_IN_L
HPF_OUT_L
N.C
L_OUT
MIC_MONO
ZOOM_BAL
ZOOM_POSI
VCC
EXT_MIC
HPF_ON/OFF
R_OUT
N.C
INT_IN_R
REG_2.5V
EXT_IN_R
MODE_CTL_1
SG_IN_R
INVT_OUT_R
AMP_OUT_R
SUB_SIG_OUT_R
MTX_AMP_IN_R
MTX_AMP_OUT_R
HPF_AMP_IN_R
HPF_OUT_R
MA_GND
AU_2.8V
2 TO(2/2)
SHOE_MIC_L
1 TO(2/2)
MIC_L
XMIC_MONO
ZOOM_MIC_CONT
EXT_MIC_DET
XWIND_ON
MIC_R
STEREO MODEL
Q321 2SD1819A BUFFER
Q322 2SB1218A LPF
IC322
MIC AMP
IC322
NJM2118V-T
M Vcc
Vcc
Out
MONAURAL MODEL
SIGNAL PATH
AUDIO SIGNAL
REC
PB
16

TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
STEREO MODEL : CCD-TRV87/TRV87P
MONAURAL MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TR317/TR517

For Schematic Diagram

- Refer to page 4-65 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G
MA-374 BOARD(2/2)
MA-375 BOARD(2/2)
LASER LINK (CN BLOCK)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
EXCEPT LASER LINK MODEL
LASER LINK MODEL
F301 0.2A
L301 0
L301 10uH 2520 ±10%
C301 XX 16V TA A
C301 4.7u 16V TA A
C303 XX B
C303 0.1u B
R304 0
R304 XX
R306 XX
R306 0
R301 XX
R301 1500
R302 XX
R302 0
R8.2/P7.8
R8.2/P7.1
R0/P7.8
Q302 2SB1218A-QRS-TX
NC2
NC1
D301 XX
D301 DCR2810
D303 CL-310IPG
D303 XX
D302 DCC3810
R305 470
R6.2/P5.1
R0/P1.1
R0/P0.5
Q304 2SD1664-T100-QR
R308 5.6 1/10W 2012
R308 6.8 1/10W 2012
R307 330
R307 XX
R309 2.7 1/10W 2012
C305 XX B
C305 0.1u B
C304 XX B
C304 0.1u B
R303 XX
R303 120
Q303 XX
Q303 2SA1037AK-T146-Q
Q301 UN5213-TX
Q301 XX
C302 XX B
C302 0.1u B
2.3
0
R310 0
R312 1800
R311 XX
D305 MA111-TX
D304 TLSU1002(TPX1) (TALLY)
R313 0
C306 XX 6.3V TA A
IC301
IC301 PNA4S13M01S0
4.6
4.7
REMOTE COMMANDER MODEL
S302
S303
POWER
VTR/PLAYER
OFF (CHARGE)
CAMERA
S301
LIGHT
OFF
AUTO
ON
R315 150k
R314 22k
D306 XX
D307 XX
VIDEO LIGHT MODEL
LND301 SEIDEN
SEIDEN
CN303 20P
1 REG_GND
2 IR_DRV_EN
3 IR_DRV_CL
4 VTR_UNREG
5 XSIRCS_SIG
6 XF_TALLY
7 A_4.75V
8 REG_GND
9 XWIND_ON
10 ZOOM_MIC_CONT
11 XMIC_MONO
12 EXT_MIC_DET
13 MIC_R
14 REG_GND
15 MIC_L
16 SHOE_MIC_L
17 AU_2.8V
18 XCAM_MODE_SW
19 XVTR_MODE_SW
20 SHOE_ID
TO VC-234 BOARD CN972 (SEE PAGE 4-31)
XWIND_ON
ZOOM_MIC_CONT
XMIC_MONO
EXT_MIC_DET
MIC_R
MIC_L
SHOE_MIC_L
① TO(1/2)
AU_2.8V
REG_GND
② TO(1/2)
③ TO(1/2)
16

(Note)
Resistor is mounted to the location
where L301 is mounted.

VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P
REMOTE COMMANDER MODEL : CCD-TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
LASER LINK MODEL : CCD-TRV87/TRV87P
TR MODEL : CCD-TR317/TR517
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P

SIGNAL PATH

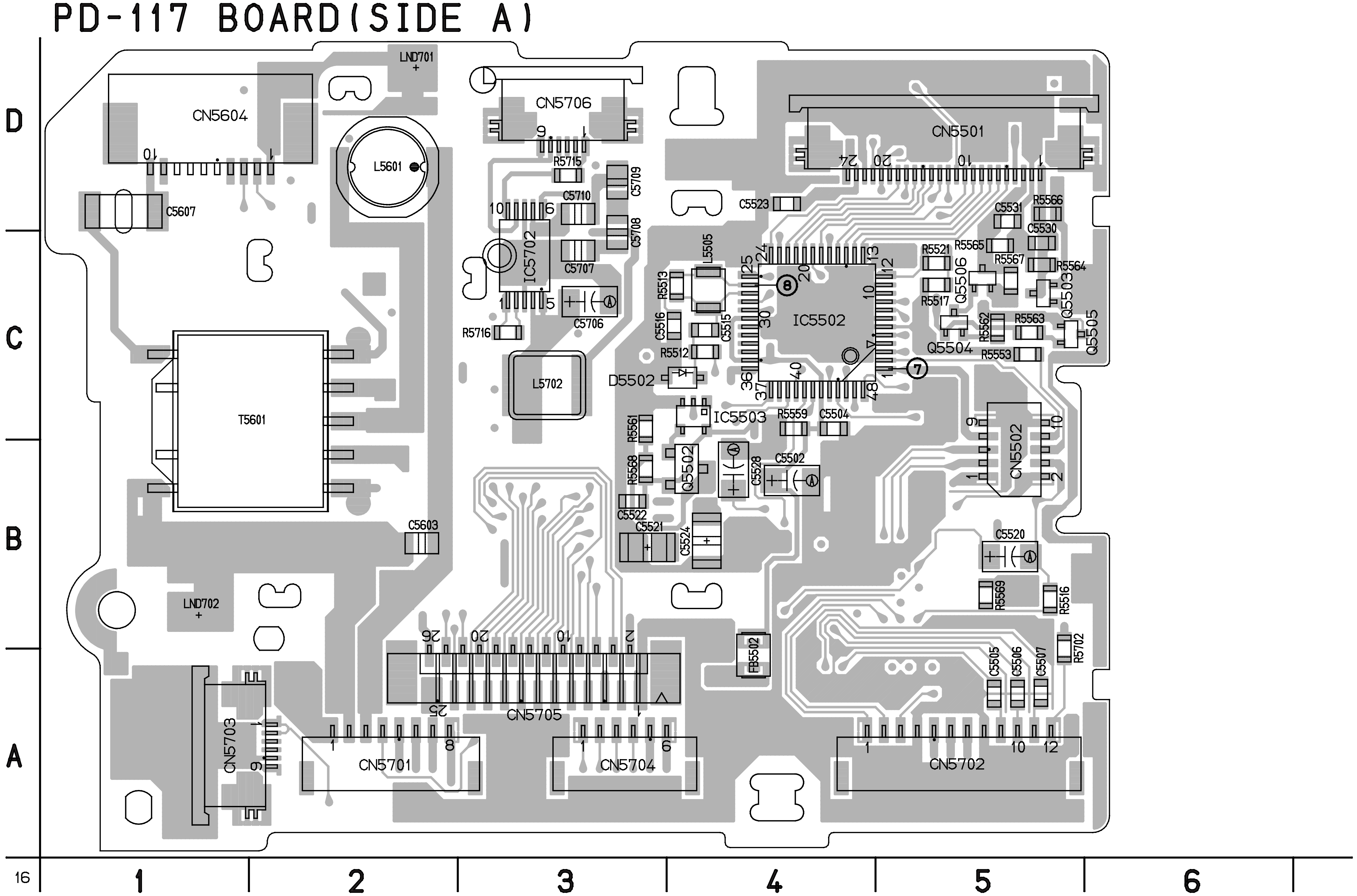
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

PD-117 (RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT DRIVE) PRINTED WIRING BOARD

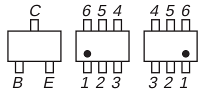
— Ref. No. PD-117 Board; 10,000 Series —


PD-117 BOARD(SIDE A)
D
C
B
A
16
1
2
3
4
5
6
LND701
CN5604
CN5706
CN5501
L5601
R5715
C5709
C5710
C5708
C5707
C5706
IC5702
R5716
L5702
C5607
C5523
L5505
R5513
C5516
C5515
R5512
D5502
IC5502
IC5503
R5559
C5504
R5561
R5568
Q5502
C5528
C5502
C5522
C5521
C5524
C5603
T5601
LND702
R5521
R5565
R5567
R5564
R5566
C5531
C5530
Q5506
Q5503
Q5505
R5517
R5562
R5563
Q5504
R5553
CN5502
C5520
R5569
R5516
R5702
FB5502
C5505
C5506
C5507
CN5705
CN5703
CN5701
CN5704
CN5702

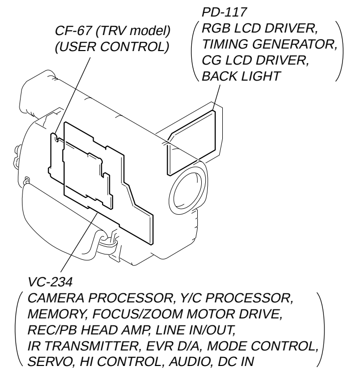
For printed wiring board

- Refer to page 4-101 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

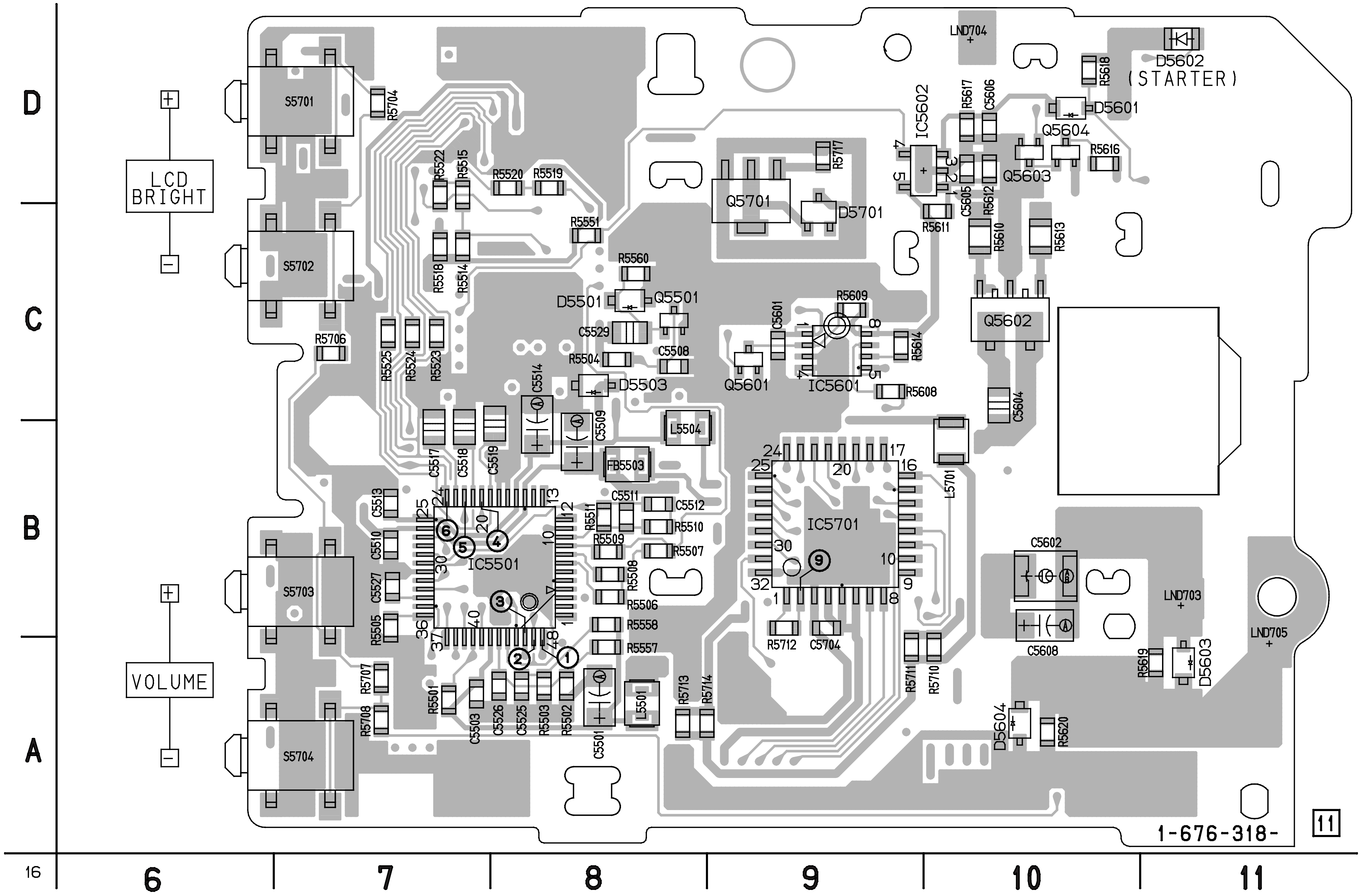
Transistor


C
B
E
6 5 4
1 2 3
4 5 6
3 2 1

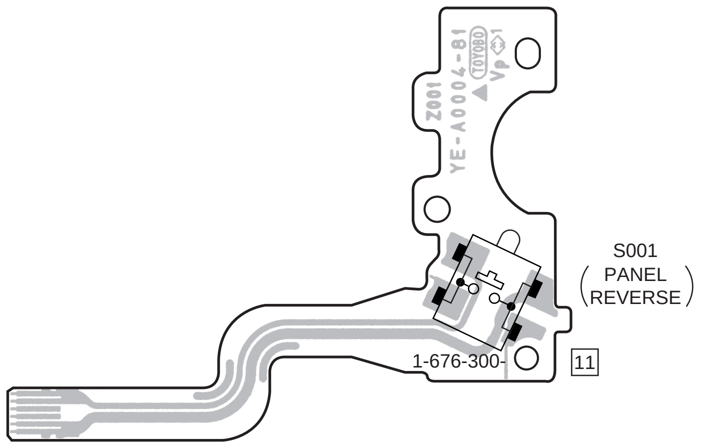
There are few cases that the part printed on this diagram isn't mounted in this model.

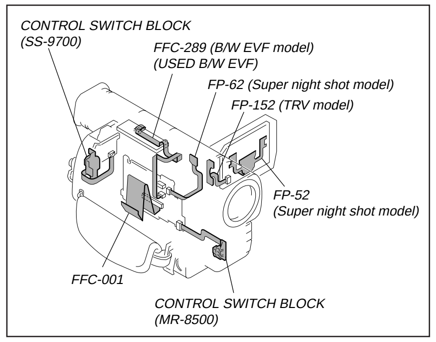

CF-67 (TRV model)
(USER CONTROL)
PD-117
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

PD-117 BOARD(SIDE B)


D
C
B
A
6
7
8
9
10
11
16
LCD BRIGHT
VOLUME
+
−
S5701
S5702
S5703
S5704
R5704
R5706
R5707
R5708
R5525
R5524
R5523
R5522
R5515
R5518
R5514
R5520
R5519
R5551
R5560
D5501
Q5501
C5529
R5504
C5508
D5503
C5514
C5509
L5504
FB5503
C5517
C5518
C5519
C5513
C5510
C5527
R5505
IC5501
C5511
C5512
R5510
R5507
R5511
R5509
R5508
R5506
R5558
R5557
R5501
C5503
C5526
C5525
R5503
R5502
C5501
L5501
R5713
R5714
Q5701
D5701
R5717
IC5602
R5617
C5606
R5618
D5602
(STARTER)
D5601
Q5604
R5616
Q5603
C5605
R5612
R5611
R5610
R5613
LND704
R5609
C5601
IC5601
Q5601
R5614
R5608
Q5602
C5604
L5701
IC5701
R5712
C5704
R5711
R5710
C5602
C5608
LND703
LND705
R5619
D5603
D5604
R5620
1-676-318-
11

FP-152 FLEXIBLE BOARD


YE-A0004-B1
Z001
S001
PANEL
REVERSE
1-676-300-
11

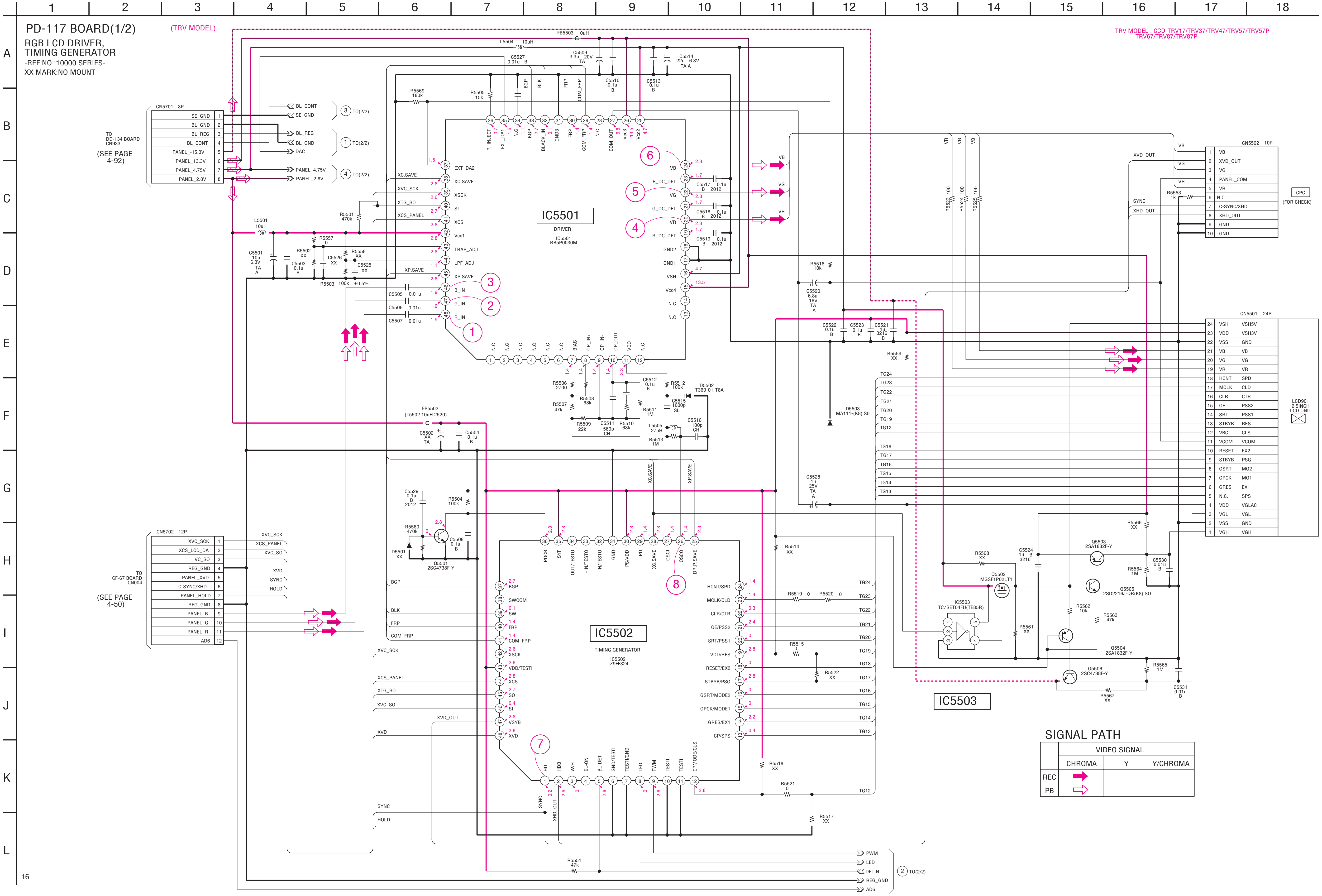

CONTROL SWITCH BLOCK
(SS-9700)
FFC-289 (B/W EVF model)
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(Super night shot model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)

RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT DRIVE / PANEL REVERSE
PD-117 **FP-152**

CCD-TR317/TR517/TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/TRV87/TRV87P

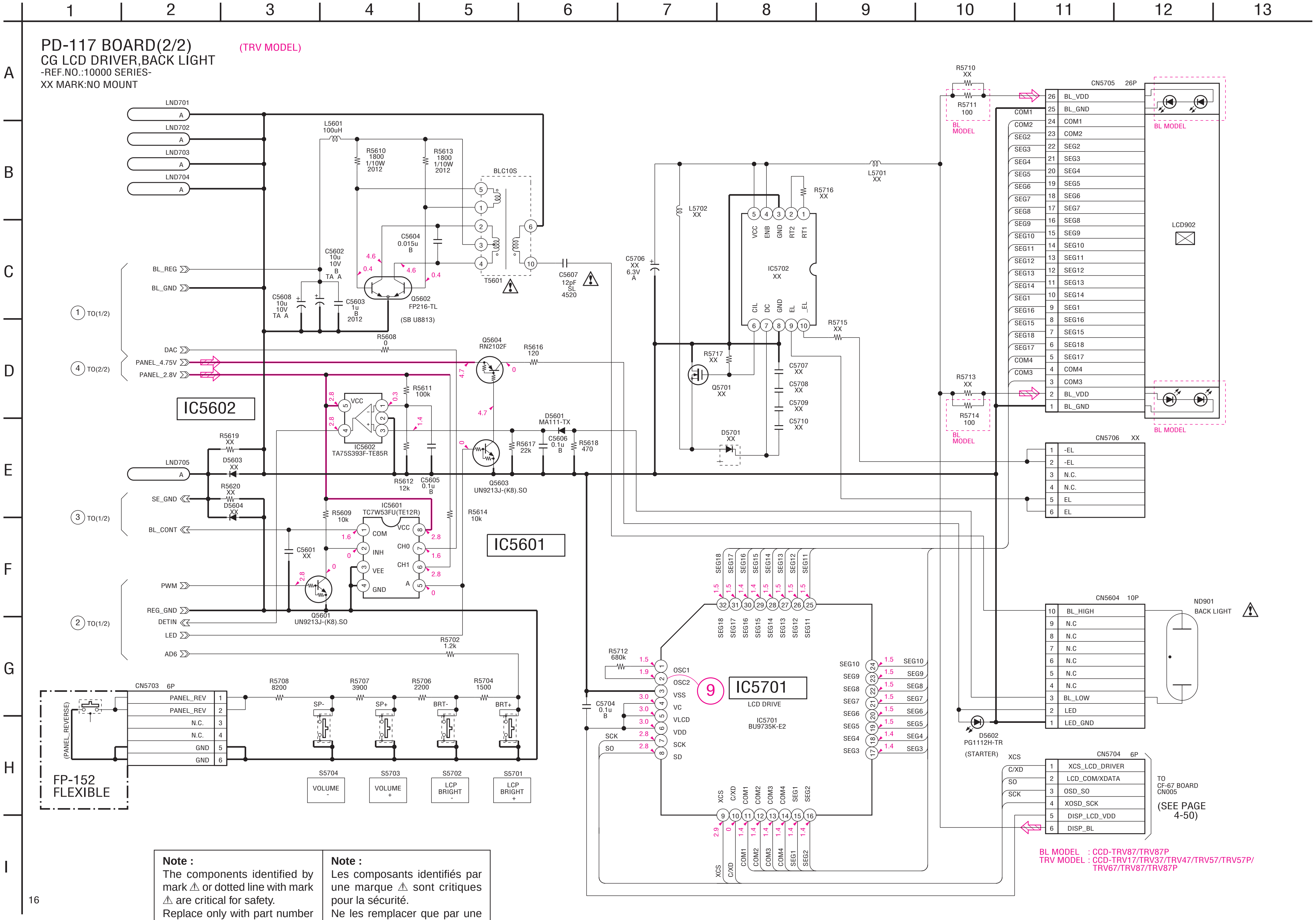
For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-96 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K L
PD-117 BOARD(1/2)
(TRV MODEL)
RGB LCD DRIVER,
TIMING GENERATOR
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P
TRV67/TRV87/TRV87P
CN5701 8P
SE_GND
BL_GND
BL_REG
BL_CONT
PANEL_-15.3V
PANEL_13.3V
PANEL_4.75V
PANEL_2.8V
TO DD-134 BOARD CN933
(SEE PAGE 4-92)
TO(2/2)
IC5501
DRIVER
IC5501 RB5P0030M
CN5702 12P
XVC_SCK
XCS_LCD_DA
VC_SO
REG_GND
PANEL_XVD
C-SYNC/XHD
PANEL_HOLD
REG_GND
PANEL_B
PANEL_G
PANEL_R
AD6
TO CF-67 BOARD CN004
(SEE PAGE 4-50)
IC5502
TIMING GENERATOR
IC5502 LZ9FF324
IC5503
TC7SET04FU(TE85R)
CN5502 10P
CPC (FOR CHECK)
CN5501 24P
LCD901 2.5INCH LCD UNIT
Q5501 2SC4738F-Y
Q5502 MGSF1P02LT1
Q5503 2SA1832F-Y
Q5504 2SA1832F-Y
Q5505 2SD2216J-QR(K8).SO
Q5506 2SC4738F-Y
D5502 1T369-01-T8A
D5503 MA111-(K8).SO
PWM
LED
DETIN
REG_GND
AD6
TO(2/2)
16
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB

For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-96 for waveform.

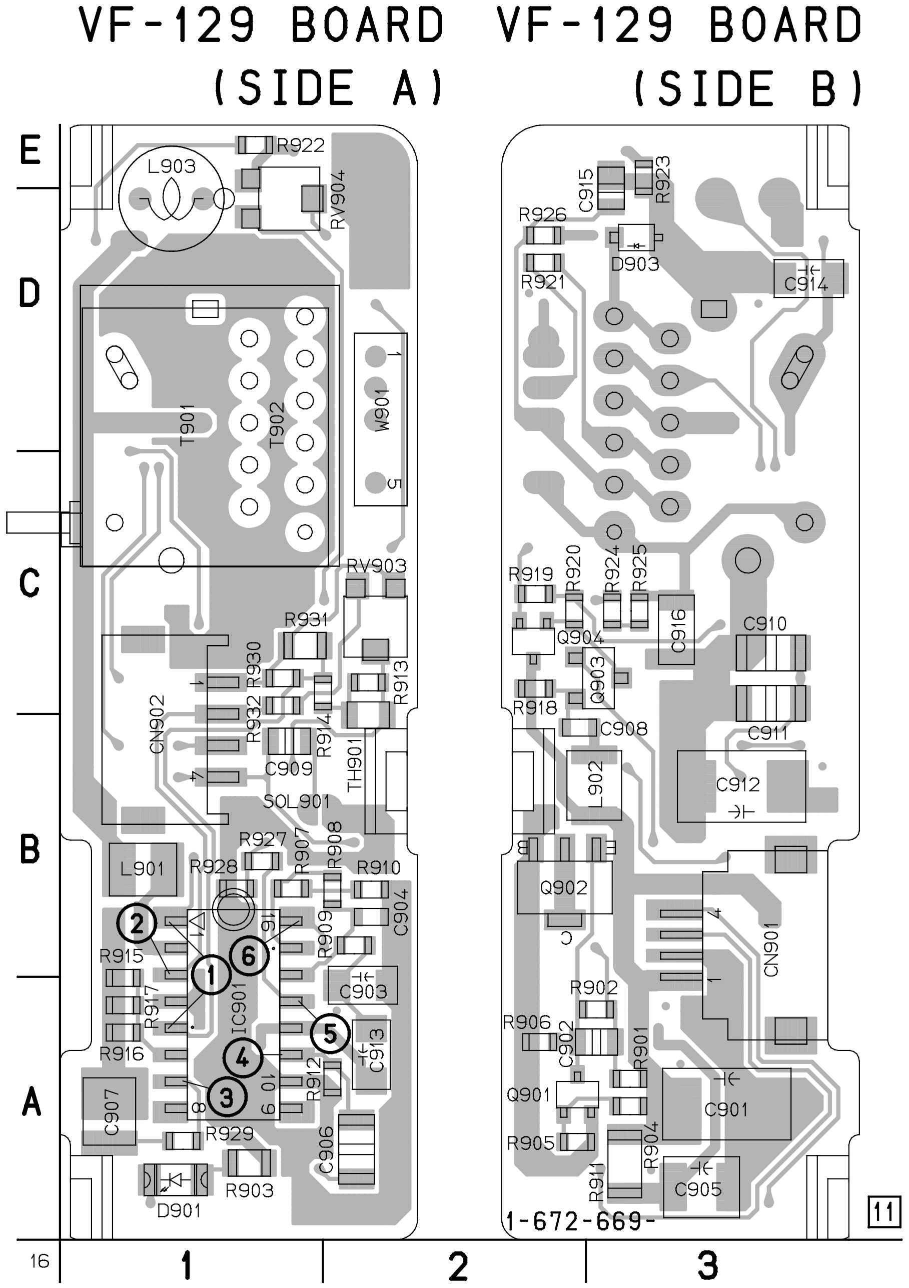

1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
PD-117 BOARD(2/2)
(TRV MODEL)
CG LCD DRIVER,BACK LIGHT
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
LND701
LND702
LND703
LND704
LND705
L5601 100uH
R5610 1800 1/10W 2012
R5613 1800 1/10W 2012
BLC10S
T5601
C5604 0.015u B
C5602 10u 10V B TA A
C5608 10u 10V TA A
C5603 1u B 2012
Q5602 FP216-TL
(SB U8813)
C5607 12pF SL 4520
C5706 XX 6.3V A
L5702 XX
L5701 XX
R5716 XX
IC5702 XX
R5715 XX
R5717 XX
Q5701 XX
D5701 XX
C5707 XX
C5708 XX
C5709 XX
C5710 XX
BL_REG
BL_GND
TO(1/2)
TO(2/2)
DAC
PANEL_4.75V
PANEL_2.8V
IC5602
IC5602 TA75S393F-TE85R
R5608 0
Q5604 RN2102F
R5616 120
R5611 100k
D5601 MA111-TX
R5617 22k
C5606 0.1u B
R5618 470
Q5603 UN9213J-(K8).SO
R5612 12k
C5605 0.1u B
R5619 XX
D5603 XX
R5620 XX
D5604 XX
SE_GND
BL_CONT
R5609 10k
IC5601 TC7W53FU(TE12R)
R5614 10k
IC5601
C5601 XX
Q5601 UN9213J-(K8).SO
PWM
REG_GND
DETIN
LED
AD6
R5702 1.2k
CN5703 6P
PANEL_REV
N.C.
GND
(PANEL_REVERSE)
FP-152 FLEXIBLE
R5708 8200
R5707 3900
R5706 2200
R5704 1500
SP-
SP+
BRT-
BRT+
S5704 VOLUME -
S5703 VOLUME +
S5702 LCP BRIGHT -
S5701 LCP BRIGHT +
R5712 680k
C5704 0.1u B
SCK
SO
IC5701
LCD DRIVE
IC5701 BU9735K-E2
OSC1
OSC2
VSS
VC
VLCD
VDD
XCS
C/XD
R5710 XX
R5711 100
BL MODEL
R5713 XX
R5714 100
CN5705 26P
BL_VDD
BL_GND
LCD902
CN5706 XX
-EL
N.C.
EL
CN5604 10P
BL_HIGH
BL_LOW
LED_GND
ND901 BACK LIGHT
D5602 PG1112H-TR
(STARTER)
CN5704 6P
XCS_LCD_DRIVER
LCD_COM/XDATA
OSD_SO
XOSD_SCK
DISP_LCD_VDD
DISP_BL
TO CF-67 BOARD CN005
(SEE PAGE 4-50)
16

BL MODEL : CCD-TRV87/TRV87P
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

VF-129 (B/W EVF) PRINTED WIRING BOARD

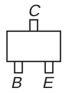
— Ref. No. VF-129 Board; 1,000 Series —


VF-129 BOARD (SIDE A)
VF-129 BOARD (SIDE B)
E
D
C
B
A
1
2
3
16
L903
R922
RV904
T901
T902
W901
1
5
RV903
R931
R930
R932
R913
R914
CN902
C909
TH901
SOL 901
R927
R928
R907
R908
R910
L901
IC901
R909
C904
C903
C913
R912
R915
R917
R916
C907
R929
C906
D901
R903
①
②
③
④
⑤
⑥
R926
C915
R923
D903
R921
C914
R919
R920
R924
R925
Q904
Q903
C916
C910
R918
C908
C911
L902
C912
Q902
CN901
R902
R906
C902
R901
Q901
C901
R905
R904
R911
C905
1-672-669-
11

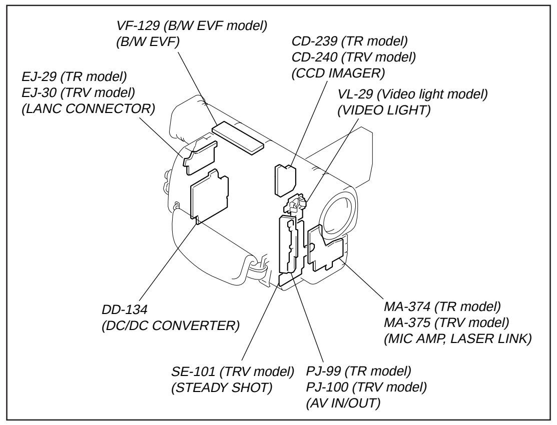
For printed wiring board

- Refer to page 4-102 for location.
- Chip parts

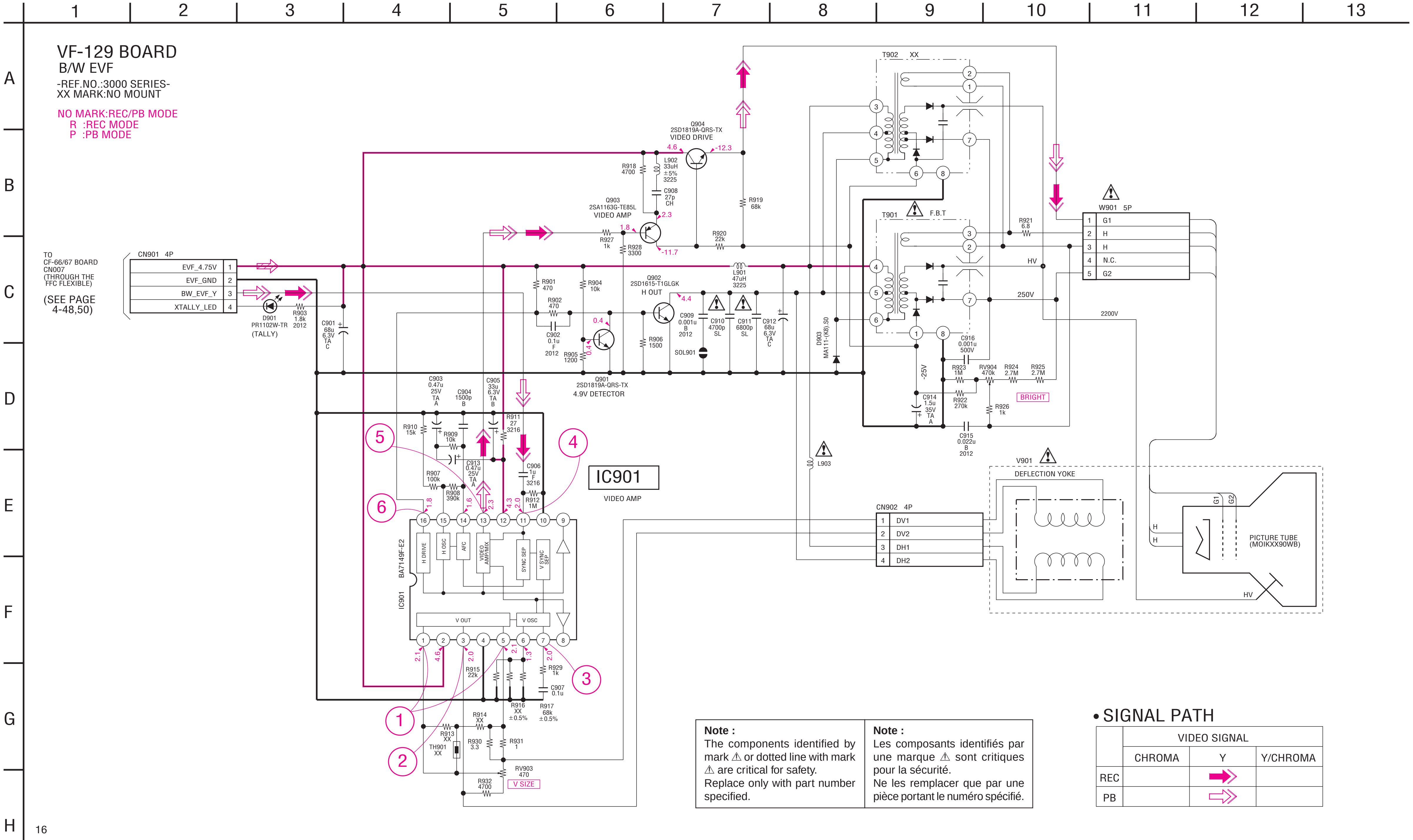
Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For Schematic Diagram
- Refer to page 4-96 for waveforms.


VF-129 BOARD
B/W EVF
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TO CF-66/67 BOARD CN007 (THROUGH THE FFC FLEXIBLE)
(SEE PAGE 4-48,50)
CN901 4P
EVF_4.75V
EVF_GND
BW_EVF_Y
XTALLY_LED
D901 PR1102W-TR (TALLY)
R903 1.8k 2012
C901 68u 6.3V TA C
Q904 2SD1819A-QRS-TX VIDEO DRIVE
Q903 2SA1163G-TE85L VIDEO AMP
Q902 2SD1615-T1GLGK H OUT
Q901 2SD1819A-QRS-TX 4.9V DETECTOR
L902 33uH ±5% 3225
L901 47uH 3225
SOL901
D903 MA111-(K8).S0
T902 XX
T901 F.B.T
W901 5P
G1
H
H
N.C.
G2
HV
250V
2200V
-25V
BRIGHT
L903
V901
DEFLECTION YOKE
CN902 4P
DV1
DV2
DH1
DH2
PICTURE TUBE (MOIKXX90WB)
IC901
VIDEO AMP
BA7149F-E2
H DRIVE
H OSC
AFC
VIDEO AMP/MIX
SYNC SEP
V SYNC SEP
V OUT
V OSC
RV903 470
V SIZE
TH901 XX
RV904 470k
1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
16

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

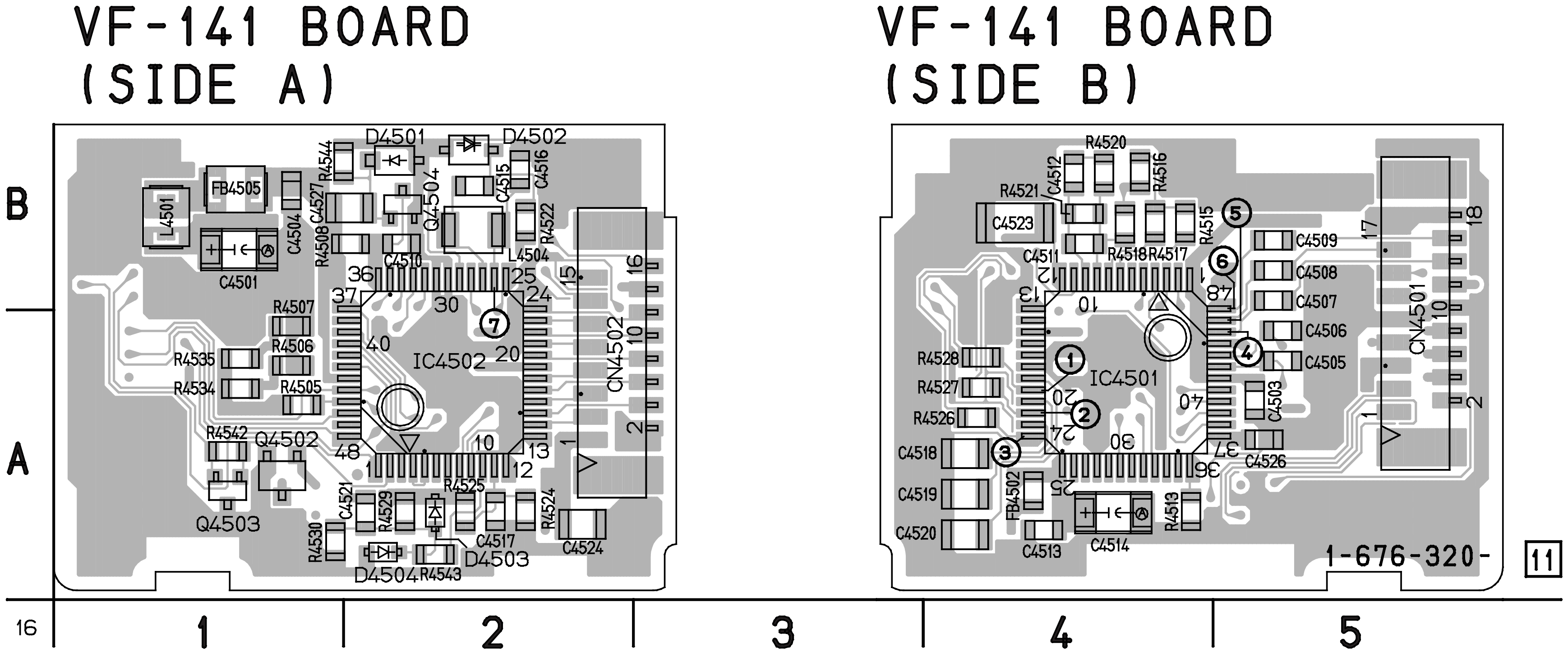
Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

- SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

VF-141 (RGB DRIVER, TG) PRINTED WIRING BOARD

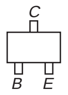
— Ref. No. VF-141 Board; 10,000 Series —


VF-141 BOARD (SIDE A)
VF-141 BOARD (SIDE B)
B
A
16
1
2
3
4
5
D4501
D4502
D4503
D4504
FB4505
L4501
L4504
C4501
C4504
C4510
C4515
C4516
C4517
C4521
C4524
C4527
R4505
R4506
R4507
R4508
R4522
R4524
R4525
R4529
R4530
R4534
R4535
R4542
R4543
R4544
Q4502
Q4503
Q4504
IC4502
CN4502
7
R4513
R4515
R4516
R4517
R4518
R4520
R4521
R4526
R4527
R4528
C4503
C4505
C4506
C4507
C4508
C4509
C4511
C4512
C4513
C4514
C4518
C4519
C4520
C4523
C4526
FB4502
IC4501
CN4501
1
2
3
4
5
6
1-676-320-
11

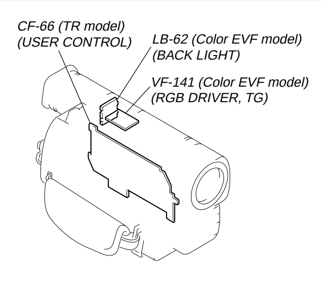
For printed wiring board

- Refer to page 4-102 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

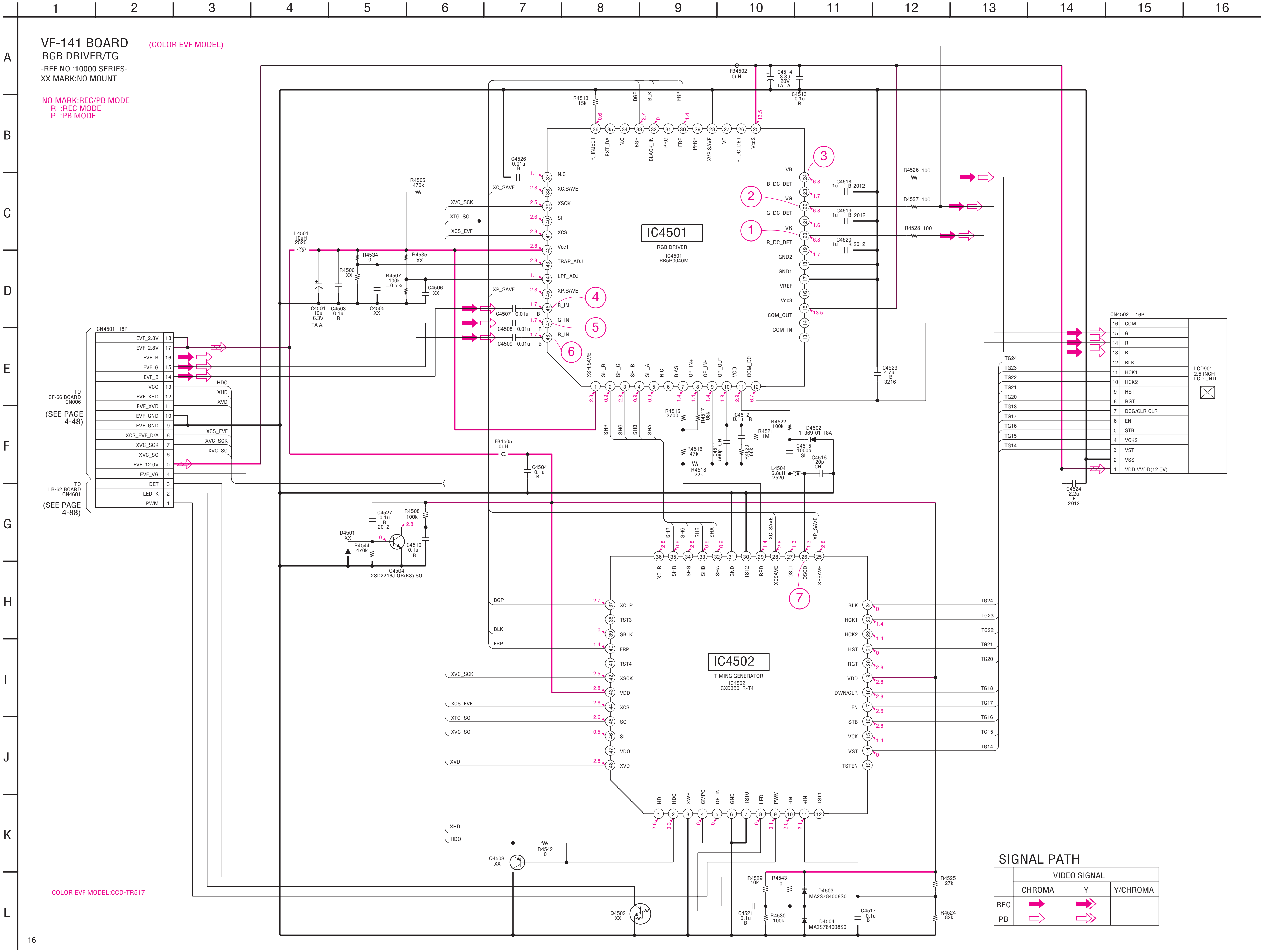
Transistor



There are few cases that the part printed on this diagram isn’t mounted in this model.


CF-66 (TR model)
(USER CONTROL)
LB-62 (Color EVF model)
(BACK LIGHT)
VF-141 (Color EVF model)
(RGB DRIVER, TG)

For Schematic Diagram
- Refer to page 4-96 for waveforms.

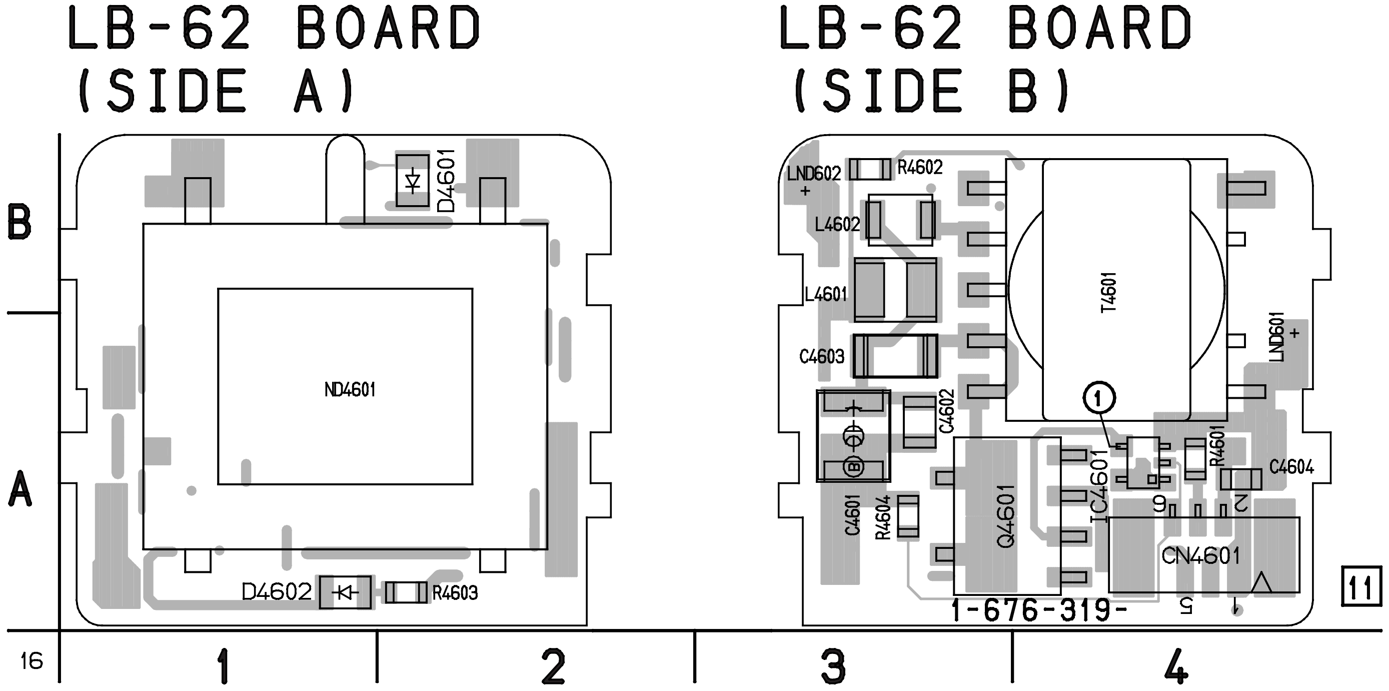

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
A
B
C
D
E
F
G
H
I
J
K
L
VF-141 BOARD
(COLOR EVF MODEL)
RGB DRIVER/TG
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC4501
RGB DRIVER
IC4501
RB5P0040M
IC4502
TIMING GENERATOR
IC4502
CXD3501R-T4
CN4501 18P
EVF_2.8V
EVF_2.8V
EVF_R
EVF_G
EVF_B
VCO
EVF_XHD
EVF_XVD
EVF_GND
EVF_GND
XCS_EVF_D/A
XVC_SCK
XVC_SO
EVF_12.0V
EVF_VG
DET
LED_K
PWM
TO
CF-66 BOARD
CN006
(SEE PAGE
4-48)
TO
LB-62 BOARD
CN4601
(SEE PAGE
4-88)
CN4502 16P
COM
G
R
B
BLK
HCK1
HCK2
HST
RGT
DCG/CLR CLR
EN
STB
VCK2
VST
VSS
VDD VVDD(12.0V)
LCD901
2.5 INCH
LCD UNIT
FB4502
0uH
C4514
3.3u
20V
TA A
C4513
0.1u
B
R4513
15k
C4526
0.01u
B
R4505
470k
L4501
10uH
2520
R4534
0
R4535
XX
R4506
XX
R4507
100k
±0.5%
C4506
XX
C4501
10u
6.3V
TA A
C4503
0.1u
B
C4505
XX
C4507 0.01u B
C4508 0.01u B
C4509 0.01u B
R4526 100
R4527 100
R4528 100
C4518 1u B 2012
C4519 1u B 2012
C4520 1u B 2012
C4523
4.7u
B
3216
R4515
2700
R4517
68k
R4516
47k
R4518
22k
C4511
560p
CH
C4512
0.1u B
R4520
68k
R4521
1M
R4522
100k
D4502
1T369-01-T8A
C4515
1000p
SL
C4516
120p
CH
L4504
6.8uH
2520
FB4505
0uH
C4504
0.1u
B
C4524
2.2u
F
2012
C4527
0.1u
B
2012
R4508
100k
D4501
XX
R4544
470k
C4510
0.1u
B
Q4504
2SD2216J-QR(K8).SO
Q4503
XX
R4542
0
Q4502
XX
R4529
10k
R4543
0
D4503
MA2S784008S0
C4521
0.1u
B
R4530
100k
D4504
MA2S784008S0
C4517
0.1u
B
R4525
27k
R4524
82k
R_INJECT
EXT_DA
N.C
BGP
BLACK_IN
PRG
FRP
PFRP
XVP SAVE
VP
P_DC_DET
Vcc2
N.C
XC.SAVE
XSCK
SI
XCS
Vcc1
TRAP_ADJ
LPF_ADJ
XP.SAVE
B_IN
G_IN
R_IN
VB
B_DC_DET
VG
G_DC_DET
VR
R_DC_DET
GND2
GND1
VREF
Vcc3
COM_OUT
COM_IN
XSH SAVE
SH_R
SH_G
SH_B
SH_A
N.C
BIAS
OP_IN+
OP_IN-
OP_OUT
VCO
COM_DC
XC_SAVE
XVC_SCK
XTG_SO
XCS_EVF
XP_SAVE
HDO
XHD
XVD
XCS_EVF
XVC_SCK
XVC_SO
SHR
SHG
SHB
SHA
XCLR
GND
TST2
RPD
XCSAVE
OSCI
OSCO
XPSAVE
XC_SAVE
XP_SAVE
BGP
BLK
FRP
XCLP
TST3
SBLK
FRP
TST4
XSCK
VDD
XCS
SO
SI
VDD
XVD
XVC_SCK
XCS_EVF
XTG_SO
XVC_SO
XVD
BLK
HCK1
HCK2
HST
RGT
VDD
DWN/CLR
EN
STB
VCK
VST
TSTEN
TG24
TG23
TG22
TG21
TG20
TG18
TG17
TG16
TG15
TG14
HD
HDO
XWRT
CMPO
DETIN
GND
TST0
LED
PWM
-IN
+IN
TST1
XHD
HDO
1
2
3
4
5
6
7
COLOR EVF MODEL:CCD-TR517
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡	➡	
PB	⇨	⇨	

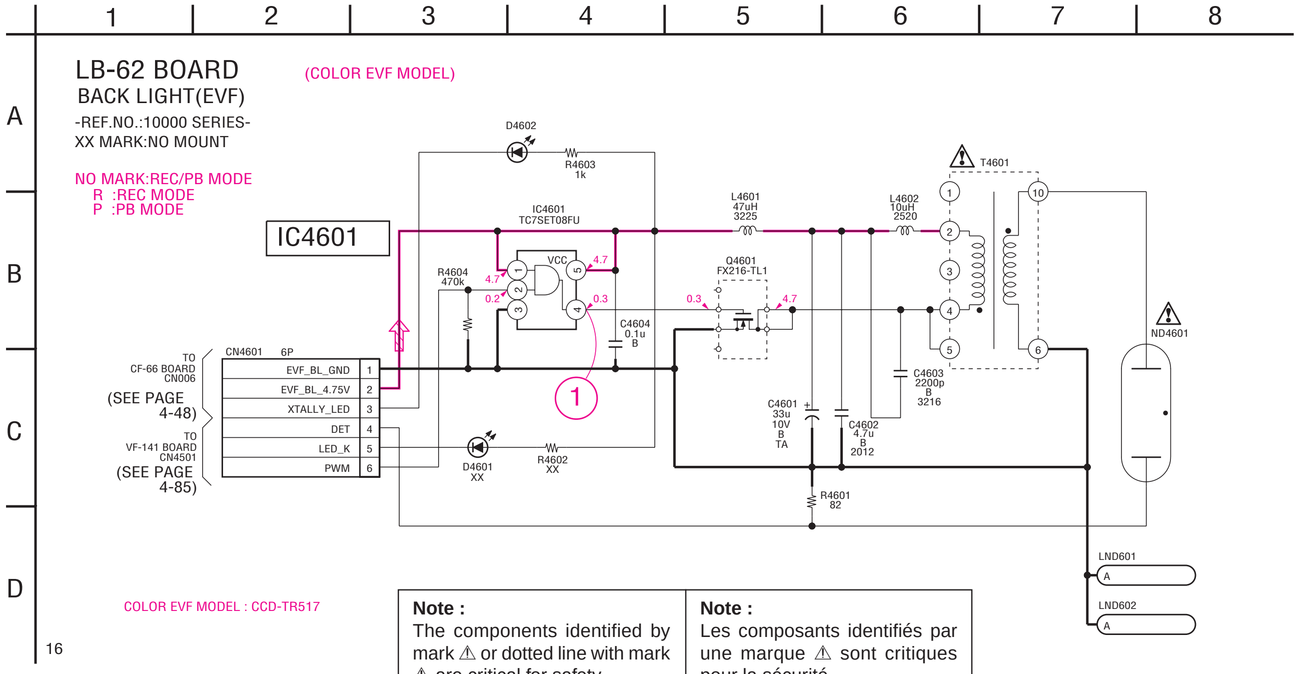
LB-62 (BACK LIGHT) PRINTED WIRING BOARD

— Ref. No. LB-62 Board; 10,000 Series —


LB-62 BOARD
(SIDE A)
LB-62 BOARD
(SIDE B)
B
A
D4601
ND4601
D4602
R4603
LND602
R4602
L4602
L4601
C4603
T4601
LND601
C4602
C4601
R4604
Q4601
IC4601
R4601
C4604
CN4601
①
6
2
5
1
1-676-319-
11
16
1
2
3
4

For Schematic Diagram

- Refer to page 4-97 for waveform.

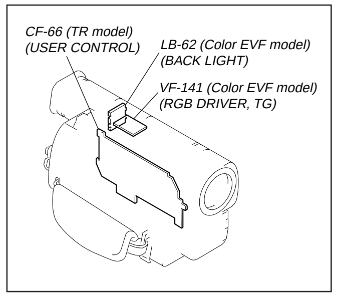

1
2
3
4
5
6
7
8
A
B
C
D
LB-62 BOARD
BACK LIGHT(EVF)
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
(COLOR EVF MODEL)
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC4601
D4602
R4603
1k
IC4601
TC7SET08FU
VCC
4.7
0.2
0.3
R4604
470k
C4604
0.1u
B
TO
CF-66 BOARD
CN006
(SEE PAGE
4-48)
TO
VF-141 BOARD
CN4501
(SEE PAGE
4-85)
CN4601 6P
EVF_BL_GND 1
EVF_BL_4.75V 2
XTALLY_LED 3
DET 4
LED_K 5
PWM 6
1
D4601
XX
R4602
XX
L4601
47uH
3225
L4602
10uH
2520
Q4601
FX216-TL1
T4601
ND4601
C4601
33u
10V
B
TA
C4602
4.7u
B
2012
C4603
2200p
B
3216
R4601
82
LND601
A
LND602
A
COLOR EVF MODEL : CCD-TR517
16

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

For printed wiring board

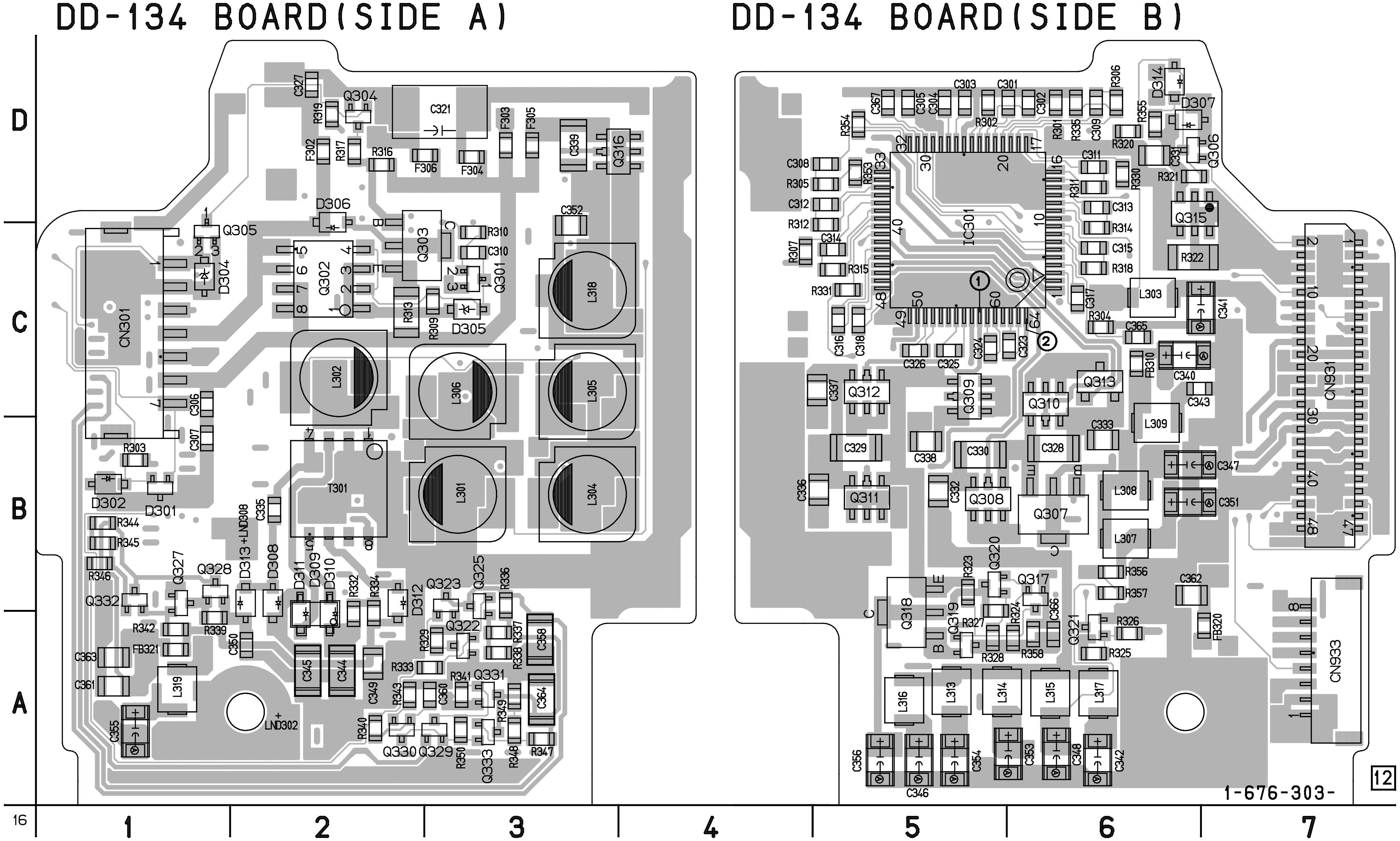
- Refer to page 4-102 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.

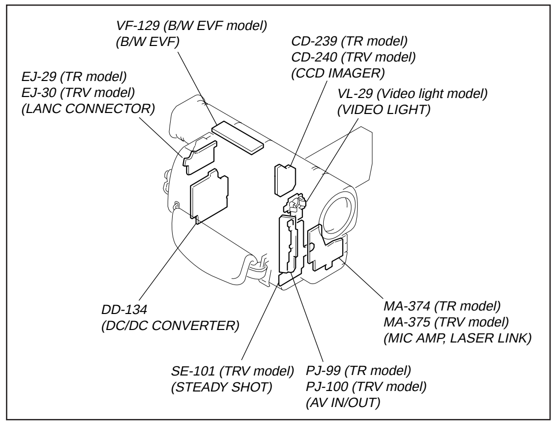
There are few cases that the part printed on this diagram isn’t mounted in this model.


CF-66 (TR model)
(USER CONTROL)
LB-62 (Color EVF model)
(BACK LIGHT)
VF-141 (Color EVF model)
(RGB DRIVER, TG)

DD-134 (DC/DC CONVERTER) PRINTED WIRING BOARD

— Ref. No. DD-134 Board; 1,000 Series —

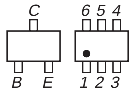

DD-134 BOARD(SIDE A)
DD-134 BOARD(SIDE B)
D
C
B
A
16
1
2
3
4
5
6
7
1-676-303-
12
CN301
Q304
C327
R319
R317
F302
C321
F303
F305
R316
F306
F304
C339
Q316
D306
Q305
D304
Q302
Q303
R310
C310
Q301
C352
L318
R313
R309
D305
L302
L306
L305
C306
C307
R303
D302
D301
T301
L301
L304
R344
R345
R346
Q327
Q328
D313
D308
LND308
C335
D311
D309
D310
R332
R334
D312
Q323
Q325
R336
Q332
R342
R339
FB321
C363
C361
L319
C350
C345
C344
Q322
R329
R337
C358
R333
R341
Q331
C349
R343
C360
R338
C364
C355
LND302
R340
Q330
Q329
R350
Q333
R349
R348
R347
C303
C301
R306
D314
C367
C305
C304
C302
R354
R302
R355
D307
R301
R335
C309
R320
Q306
C308
R353
C311
R305
R330
R321
C312
R311
C313
Q315
R312
IC301
R314
C314
C315
R307
R315
R318
R322
R331
C317
L303
C341
R304
C365
C316
C318
C326
C325
C324
C323
FB310
C340
C337
Q312
Q309
Q310
Q313
C343
CN931
C333
L309
C329
C338
C330
C328
C347
C336
Q311
C332
Q308
Q307
L308
C351
L307
Q320
R323
Q317
R356
C362
R357
Q318
Q319
R327
R324
C366
Q321
R326
FB320
R328
R358
R325
CN933
L316
L313
L314
L315
L317
C356
C354
C353
C348
C342
C346


VF-129 (B/W EVF model)
(B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-29 (Video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For printed wiring board

- Refer to page 4-103 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

Transistor

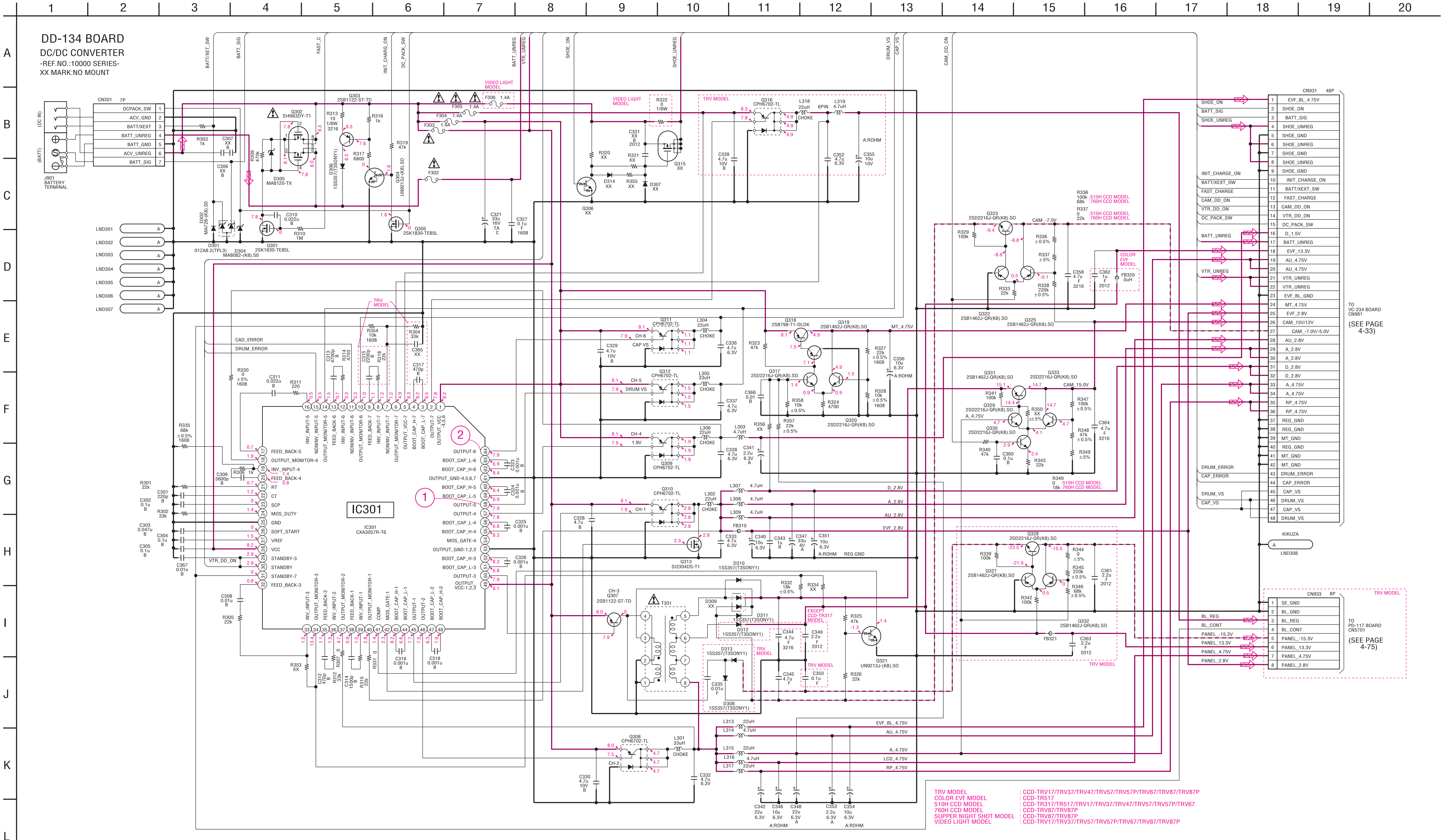


There are few cases that the part printed on this diagram isn't mounted in this model.

CCD-TR317/TR517/TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/TRV87/TRV87P

For Schematic Diagram

- Refer to page 4-89 for printed wiring board.
- Refer to page 4-97 for waveforms.


1
2
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11
12
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14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
DD-134 BOARD
DC/DC CONVERTER
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
CN301 7P
1 DCPACK_SW
2 ACV_GND
3 BATT/XEXT
4 BATT_UNREG
5 BATT_GND
6 ACV_UNREG
7 BATT_SIG
(DC IN)
(BATT)
J901
BATTERY
TERMINAL
LND301
LND302
LND303
LND304
LND305
LND306
LND307
BATT/XET_SW
BATT_SIG
FAST_C
INIT_CHARG_ON
DC_PACK_SW
BATT_UNREG
VTR_UNREG
SHOE_ON
SHOE_UNREG
DRUM_VS
CAP_VS
CAM_DD_ON
VIDEO LIGHT MODEL
TRV MODEL
Q302
SI4963DY-T1
Q303
2SB1122-ST-TD
D305
MA8120-TX
Q301
2SK1830-TE85L
Q305
2SK1830-TE85L
Q304
UN9213J-(K8).SO
D301
01ZA8.2(TPL3)
D304
MA8082-(K8).SO
D302
MA728-(K8).SO
D306
1SS357(T3SONY1)
F302
F303 1.4A
F304 1.4A
F305 1.4A
F306 1.4A
Q306
Q315
Q316
CPH6702-TL
L318
22uH
6PIN
CHOKE
L319
4.7uH
A:ROHM
CAD_ERROR
DRUM_ERROR
IC301
CXA3057R-T6
1
2
FEED_BACK-5
OUTPUT_MONITOR-4
INV_INPUT-4
FEED_BACK-4
RT
CT
SCP
MOS_DUTY
GND
SOFT_START
VREF
VCC
STANDBY-3
STANDBY
STANDBY-7
FEED_BACK-3
OUTPUT-6
BOOT_CAP_L-6
BOOT_CAP_H-6
OUTPUT_GND-4,5,6,7
BOOT_CAP_H-5
BOOT_CAP_L-5
OUTPUT-5
OUTPUT-4
BOOT_CAP_L-4
BOOT_CAP_H-4
MOS_GATE-4
OUTPUT_GND-1,2,3
BOOT_CAP_H-3
BOOT_CAP_L-3
OUTPUT-3
OUTPUT VCC-1,2,3
VTR_DD_ON
Q311
CPH6702-TL
Q312
CPH6702-TL
Q309
CPH6702-TL
Q310
CPH6702-TL
Q313
SI2304DS-T1
Q307
2SB1122-ST-TD
Q308
CPH6702-TL
CH-1
CH-2
CH-3
CH-4
CH-5
CH-6
CAP VS
DRUM VS
T301
Q317
2SD2216J-QR(K8).SO
Q318
2SB798-T1-DLDK
Q319
2SB1462J-QR(K8).SO
Q320
2SD2216J-QR(K8).SO
Q321
UN9213J-(K8).SO
Q322
2SB1462J-QR(K8).SO
Q323
2SD2216J-QR(K8).SO
Q325
2SB1462J-QR(K8).SO
Q327
2SB1462J-QR(K8).SO
Q328
2SD2216J-QR(K8).SO
Q329
2SD2216J-QR(K8).SO
Q330
2SD2216J-QR(K8).SO
Q331
2SB1462J-QR(K8).SO
Q332
2SB1462J-QR(K8).SO
Q333
2SD2216J-QR(K8).SO
MT_4.75V
CAM_-7.0V
CAM_15.0V
A_4.75V
COLOR EVF MODEL
510H CCD MODEL
760H CCD MODEL
EXCEPT CCD-TR317 MODEL
D_2.8V
A_2.8V
AU_2.8V
EVF_2.8V
A:ROHM
REG GND
EVF_BL_4.75V
AU_4.75V
A_4.75V
LCD_4.75V
RP_4.75V
L301
L302
L303
L304
L305
L306
L307
L308
L309
L313
L314
L315
L316
L317
FB310
FB320
FB321
D308
D309
D310
D311
D312
D313
1SS357(T3SONY1)
CN931 48P
1 EVF_BL_4.75V
2 SHOE_ON
3 BATT_SIG
4 SHOE_UNREG
5 SHOE_GND
6 SHOE_UNREG
7 SHOE_GND
8 SHOE_UNREG
9 SHOE_GND
10 INIT_CHARGE_ON
11 BATT/XEXT_SW
12 FAST_CHARGE
13 CAM_DD_ON
14 VTR_DD_ON
15 DC_PACK_SW
16 D_1.5V
17 BATT_UNREG
18 EVF_13.3V
19 AU_4.75V
20 AU_4.75V
21 VTR_UNREG
22 VTR_UNREG
23 EVF_BL_GND
24 MT_4.75V
25 EVF_2.8V
26 CAM_15V/12V
27 CAM_-7.0V/-5.0V
28 AU_2.8V
29 A_2.8V
30 A_2.8V
31 D_2.8V
32 D_2.8V
33 A_4.75V
34 A_4.75V
35 RP_4.75V
36 RP_4.75V
37 REG_GND
38 REG_GND
39 MT_GND
40 REG_GND
41 MT_GND
42 MT_GND
43 DRUM_ERROR
44 CAP_ERROR
45 CAP_VS
46 DRUM_VS
47 CAP_VS
48 DRUM_VS
TO
VC-234 BOARD
CN981
(SEE PAGE 4-33)
KIKUZA
A
LND308
CN933 8P
1 SE_GND
2 BL_GND
3 BL_REG
4 BL_CONT
5 PANEL_-15.3V
6 PANEL_13.3V
7 PANEL_4.75V
8 PANEL_2.8V
BL_REG
BL_CONT
PANEL_-15.3V
PANEL_13.3V
PANEL_4.75V
PANEL_2.8V
TO
PD-117 BOARD
CN5701
(SEE PAGE 4-75)
TRV MODEL
16

TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
COLOR EVF MODEL : CCD-TR517
510H CCD MODEL : CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67
760H CCD MODEL : CCD-TRV87/TRV87P
SUPPER NIGHT SHOT MODEL : CCD-TRV87/TRV87P
VIDEO LIGHT MODEL : CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P

Note :

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :

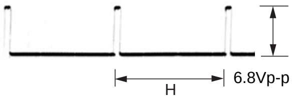
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

4-3. WAVEFORMS

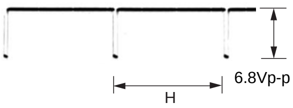
CD-239/240 BOARD

CAMERA REC

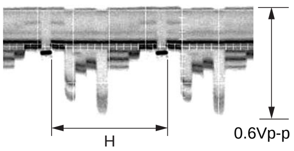
① IC1201 ①,②



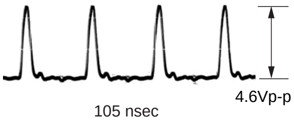
② IC1201 ③,④



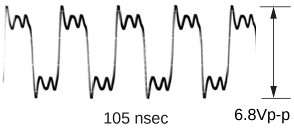
③ IC1201 ⑦



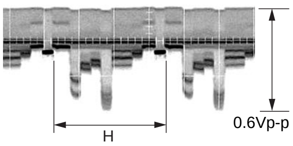
④ IC1201 ⑫



⑤ IC1201 ⑬,⑭

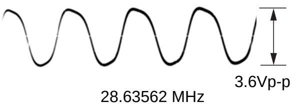


⑥ Q201 Ⓔ

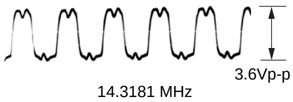


VC-234 BOARD (1/13)

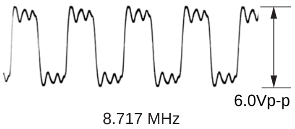
① IC501 ⑤
CAMERA REC/PB



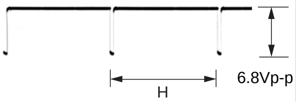
② IC501 ⑪
CAMERA REC/PB



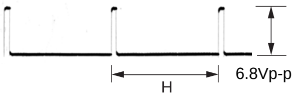
③ IC501 ㉑
CAMERA REC



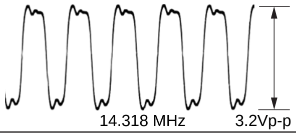
④ IC501 ㉖
CAMERA REC



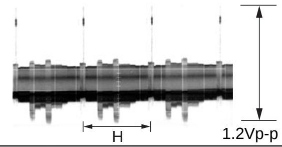
⑤ IC501 ㉘
CAMERA REC



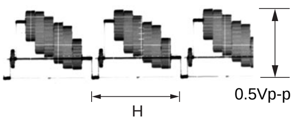
⑥ IC502 ⑯
CAMERA REC/PB
LINE REC



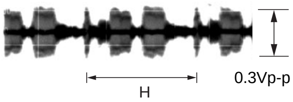
⑦ IC502 ㉚
CAMERA REC



⑧ IC502 ㉞
LINE REC

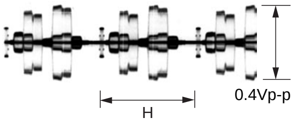


⑨ IC502 ㊱ PB

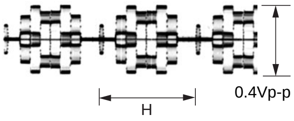


VC-234 BOARD (2/13)

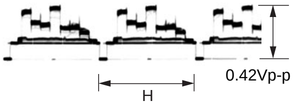
⑩ IC201 (213)
CAMERA REC/PB



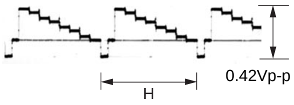
⑩ IC201 (213)
LINE REC



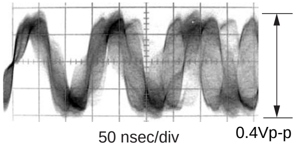
⑪ IC201 ④
CAMERA REC/PB



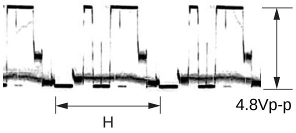
⑪ IC201 ④
LINE REC



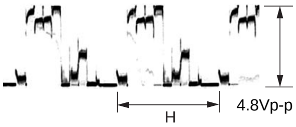
⑫ IC201 ⑦
REC



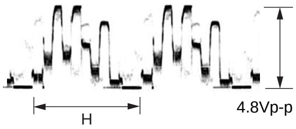
⑬ IC201 ⑭
CAMERA REC/PB



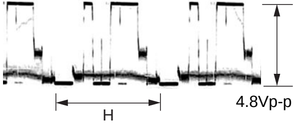
⑭ IC201 ⑰
CAMERA REC/PB



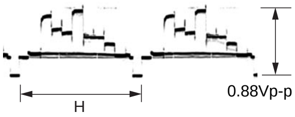
⑮ IC201 ㉔
CAMERA REC/PB



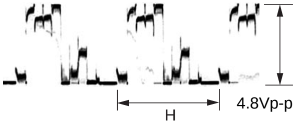
⑯ IC201 ㉗
CAMERA REC
(COLOR EVF MODEL)



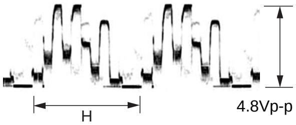
⑰ IC201 ㉞
CAMERA REC
(B/W EVF MODEL)



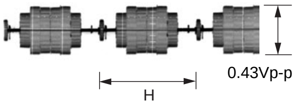
⑰ IC201 ㉞
CAMERA REC
(COLOR EVF MODEL)



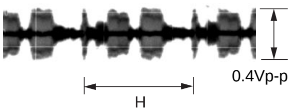
⑱ IC201 ㊲
CAMERA REC
(COLOR EVF MODEL)



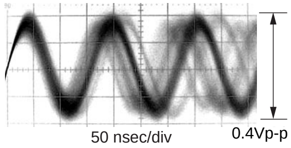
⑲ IC201 ㊽
LINE REC



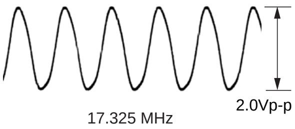
⑳ IC201 ㊾
PB



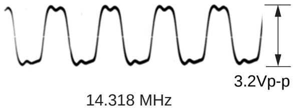
㉑ IC201 (51)
PB



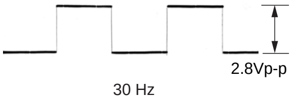
㉒ IC201 (67)



㉓ IC201 (81)
CAMERA REC/PB

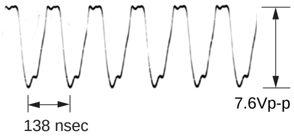


㉔ IC201 (85)
CAMERA REC/PB

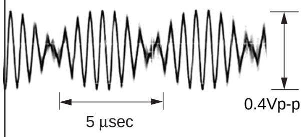


VC-234 BOARD (5/13)

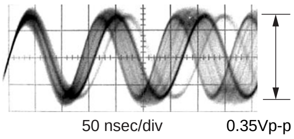
㉕ CN101 ⑯, Q101 Ⓒ
REC



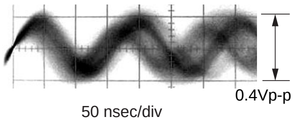
㉖ IC101 ①
REC



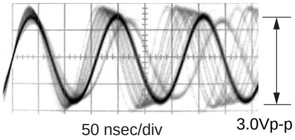
㉗ IC101 ⑤
REC



㉘ IC101 ⑭
PB

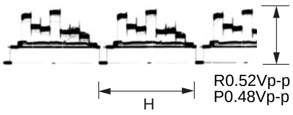


㉙ IC101 ㉗,㉞
REC

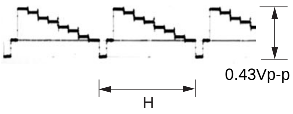


VC-234 BOARD (6/13)

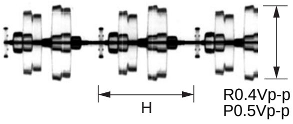
㉚ IC641 ㊹
CAMERA REC/PB



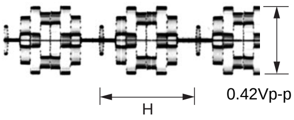
㉚ IC641 ㊹
LINE REC



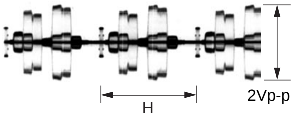
㉛ IC641 ⑤
CAMERA REC/PB



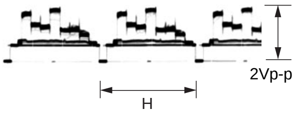
㉛ IC641 ⑤
LINE REC



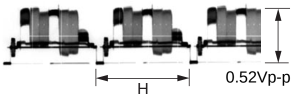
㉜ IC641 ⑭
CAMERA REC/PB
(S VIDEO OUT)



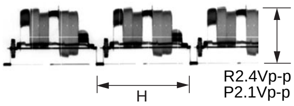
㉝ IC641 ⑱
CAMERA REC/PB
(S VIDEO OUT)



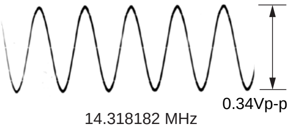
㉞ IC641 ㉔
CAMERA REC/PB
IR ON



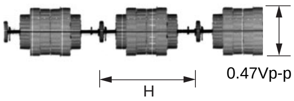
㉟ IC641 ㉒
CAMERA REC/PB



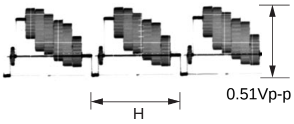
㊱ IC641 ㉘
LINE REC



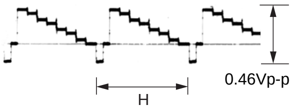
㊲ IC641 ㉞
LINE REC



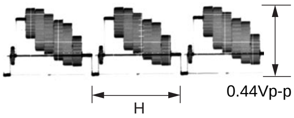
㊳ IC641 ㊱
LINE REC



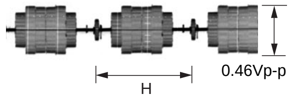
㊴ IC641 ㊴
LINE REC (S-VIDEO IN)



㊵ IC641 ㊷
LINE REC (VIDEO IN)

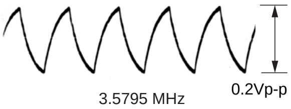


㊶ IC641 ㊽
LINE REC (S-VIDEO IN)

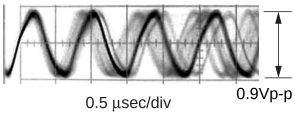


VC-234 BOARD (7/13)

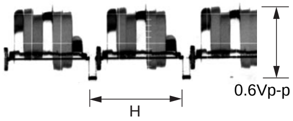
㊷ IC751 ⑦
CAMERA REC/PB



㊸ IC751 ㉒
CAMERA REC/PB
IR ON



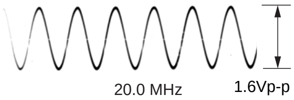
㊹ IC751 ㊶
CAMERA REC/PB
IR ON



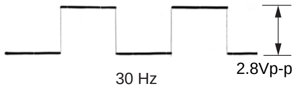
VC-234 BOARD (9/13)

CAMERA REC/PB

㊺ IC902 ①



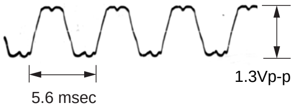
㊻ IC902 ㊼



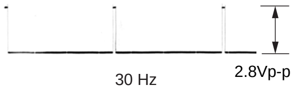
VC-234 BOARD (10/13)

CAMERA REC/PB

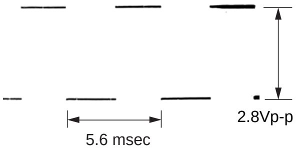
㊼ IC401 (57),(59),(61)



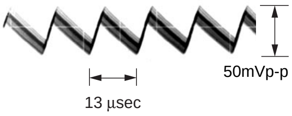
㊽ IC401 ㉒



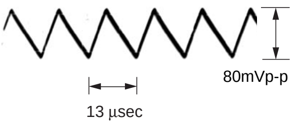
㊾ IC401 ⑯



㊿ IC401 ㉕



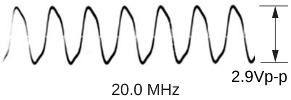
(51) IC401 ㉘



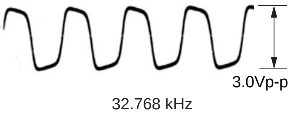
VC-234 BOARD (11/13)

CAMERA REC/PB

(52) IC803 ㊵

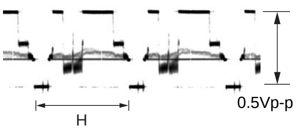


(53) IC803 (53)

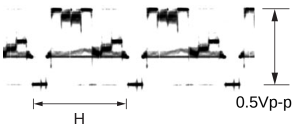


PD-117 BOARD (1/2)

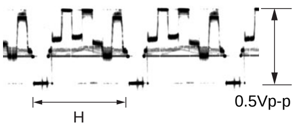
① IC5501 ㊽



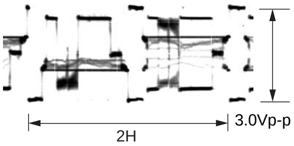
② IC5501 ㊼



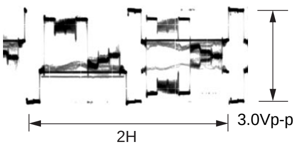
③ IC5501 ㊻



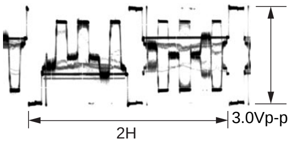
④ IC5501 ⑳



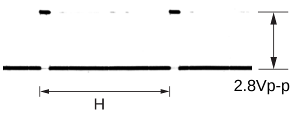
⑤ IC5501 ㉒



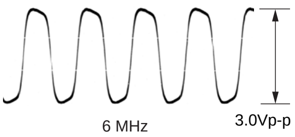
⑥ IC5501 ㉔



⑦ IC5502 ①

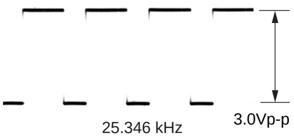


⑧ IC5502 ㉖



PD-117 BOARD (2/2)

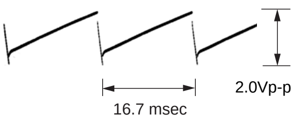
⑨ IC5701 ②



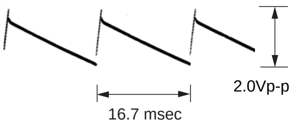
VF-129 BOARD

CAMERA REC/PB

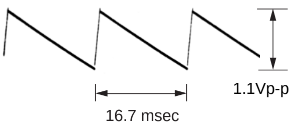
① IC901 ①,⑤



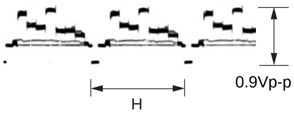
② IC901 ③



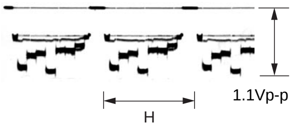
③ IC901 ⑦



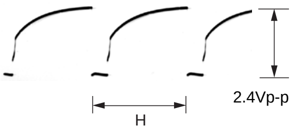
④ IC901 ⑪



⑤ IC901 ⑬

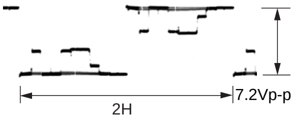


⑥ IC901 ⑯

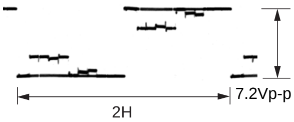


VF-141 BOARD

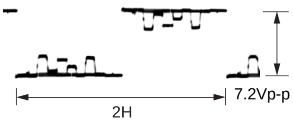
① IC4501 ⑳



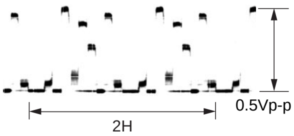
② IC4501 ㉒



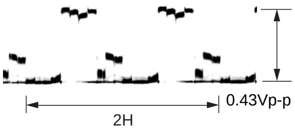
③ IC4501 ㉔



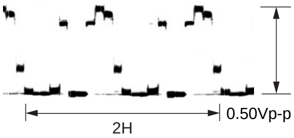
④ IC4501 ㊻



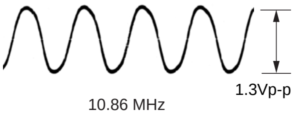
⑤ IC4501 ㊼



⑥ IC4501 ㊽

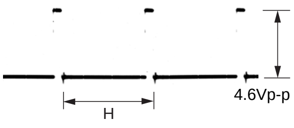


⑦ IC4502 ㉖



LB-62 BOARD

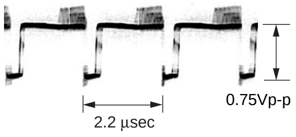
① IC4601 ④



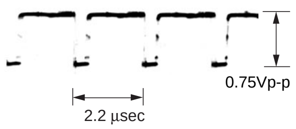
DD-134 BOARD

CAMERA REC/PB

① IC301 ㊿8



② IC301 (64)



4-4. MOUNTED LOCATION

CD-239/240 BOARD (SIDE A)

C201	A-1
C202	B-1
C203	B-1
C204	A-1
C205	A-1
CN201	B-2
L201	A-2
LND201	A-2
Q201	B-1
R201	B-2
R202	B-1
R203	B-1
R204	A-1

CD-239/240 BOARD (SIDE B)

IC201	A-3

VC-234 BOARD (SIDE A)

C104	A-5
C108	B-4
C109	B-5
C110	B-5
C111	B-5
C112	B-5
C113	A-4
C114	A-5
C115	B-4
C116	B-5
C117	B-5
C118	B-4
C120	B-5
C121	B-4
C123	B-4
C125	C-5
C131	B-4
C133	B-5
C134	B-5
C135	C-5
C136	C-4
C137	B-4
C138	C-4
C139	C-4
C141	B-5
C160	C-4
C206	E-9
C211	E-9
C212	D-8
C216	E-9
C217	D-8
C218	D-6
C219	E-7
C220	D-7
C221	D-7
C222	D-7
C223	E-7
C224	E-8
C225	E-8
C226	E-8
C227	E-8
C228	E-8
C231	D-8
C232	E-8
C236	E-8
C243	E-6
C245	F-6
C246	E-9
C247	F-9
C249	F-6
C250	G-9
C251	G-9
C256	F-6
C259	G-9
C261	G-6
C402	A-8
C410	A-8
C414	A-9
C506	F-5
C508	F-6
C511	F-5
C513	F-5
C514	F-5
C515	F-5
C516	E-5
C517	E-5
C518	E-5
C519	E-5
C520	E-5
C521	E-6
C522	E-6
C523	E-6
C524	E-6
C527	F-5
C528	F-6
C551	G-4
C552	G-4
C554	G-4
C559	F-4
C560	F-4
C562	F-4
C564	F-5
C565	E-4
C566	F-4
C567	F-5
C568	E-4
C570	F-5
C571	F-5
C572	F-4
C573	F-4
C642	C-1
C643	C-2
C650	C-2
C651	C-2
C664	C-1
C671	C-2
C672	C-2
C673	C-2
C701	A-2
C702	A-2
C703	B-2
C704	B-2
C705	A-1
C706	A-1
C707	B-2
C708	A-2
C709	B-1
C710	B-1
C711	B-1
C712	B-1
C713	A-2
C714	B-2
C715	A-1
C716	B-2
C717	A-2
C718	C-3
C719	A-2
C720	B-3
C721	B-2
C722	B-3
C723	A-3
C724	B-3
C725	B-3
C726	C-3
C727	C-3
C728	A-3
C729	B-3
C730	A-3
C731	B-3
C732	B-3
C733	A-3
C734	B-3
C735	A-3
C736	B-3
C737	B-3
C738	B-3
C739	A-3
C740	A-3
C741	A-3
C742	B-3
C743	B-3
C744	B-3
C745	A-3
C746	B-2
C747	B-2
C815	B-8
C817	B-8
C819	D-8
C820	C-7
C821	C-7
C822	D-7
C823	C-7
C824	B-7
C825	C-7
C826	C-7
C901	D-4
C902	D-4
C903	D-4
C904	D-4
C908	E-5
C909	D-5
C910	D-5
C911	C-6
C912	C-6
C913	C-6
C914	D-6
C971	D-9
C972	D-9
CN101	A-4
CN501	E-5
CN551	G-5
CN972	A-1
CN974	A-2
CN975	B-7
CN976	A-6
CN977	F-9
CN978	A-7
CN979	A-8
CN981	B-9
CN983	D-9
D551	G-4
D973	G-9
FB101	A-4
FB102	A-5
FB201	G-6
FB502	F-5
FB503	F-5
FB504	F-6
FB505	F-6
FB641	C-3
IC101	B-4
IC201	F-7
IC202	G-6
IC502	F-6
IC552	F-4
IC701	B-3
IC803	C-8
IC902	D-5
L108	C-4
L203	D-8
L291	C-4
L553	E-5
L642	C-3
L644	C-3
LND101	B-6
LND102	C-6
LND103	C-4
Q101	B-5
Q102	B-5
Q103	B-5
Q104	B-5
Q202	E-6
Q204	E-7
Q205	E-7
Q206	E-7
Q207	E-7
Q208	E-8
Q209	E-8
Q212	E-6
Q401	A-9
Q551	G-4
Q554	E-4
Q641	C-3
Q642	C-2
Q643	C-2
Q644	C-1
Q701	B-1
Q703	B-1
Q704	B-1
Q706	B-1
Q707	A-1
Q709	A-1
Q710	B-2
Q711	B-2
Q712	C-3
Q713	C-3
Q974	D-9
Q975	D-9
R101	A-5
R102	A-5
R105	B-5
R110	B-5
R111	B-5
R112	B-5
R113	B-5
R114	B-4
R115	B-5
R116	B-5
R117	B-5
R120	B-4
R121	B-5
R122	C-5
R127	B-4
R128	C-4
R201	E-9
R202	E-9
R206	E-6
R207	E-6
R208	E-8
R209	E-9
R210	E-7
R211	E-7
R212	E-7
R213	E-7
R214	E-8
R215	E-8
R216	E-7
R217	E-7
R218	E-7
R219	E-7
R220	E-8
R221	E-8
R225	E-8
R226	E-9
R228	E-9
R230	E-8
R231	E-8
R233	E-8
R234	E-6
R235	E-6
R236	D-7
R237	E-7
R238	D-7
R239	E-7
R240	E-7
R241	D-7
R242	D-7
R243	E-7
R244	E-7
R245	D-7
R246	D-8
R247	E-8
R248	D-8
R249	E-8
R250	E-8
R254	E-6
R255	E-6
R256	E-6
R257	E-6
R258	G-9
R259	F-9
R263	G-9
R273	G-9
R282	G-9
R401	A-7
R402	A-7
R403	A-3
R404	A-3
R405	A-7
R406	A-3
R407	A-8
R411	A-9
R414	A-8
R416	A-9
R432	A-8
R436	A-8
R504	F-5
R505	F-5
R506	F-6
R508	F-6
R509	F-5
R515	E-6
R516	E-6
R517	E-6
R551	G-4
R552	E-4
R553	G-4
R554	F-4
R555	G-5
R556	F-4
R557	G-5
R560	E-4
R561	F-4
R562	F-4
R563	F-4
R564	F-4
R565	F-4
R566	F-4
R567	G-4
R568	F-4
R569	F-4
R570	F-4
R571	F-4
R572	F-5
R573	F-4
R574	E-4
R575	E-4
R576	E-4
R577	E-4
R578	E-5
R641	C-2
R642	C-2
R643	C-1
R644	C-2
R645	C-2
R646	C-1
R647	C-2
R649	C-1
R703	A-2
R705	B-1
R706	B-1
R707	A-2
R707	A-2
R708	A-2
R710	B-2
R711	B-2
R712	A-2
R713	A-3
R714	B-3
R715	B-3
R716	A-3
R717	A-3
R718	B-3
R720	A-3
R721	B-2
R722	B-2
R723	B-2
R724	B-2
R725	B-1
R726	B-1
R727	B-2
R728	C-3
R729	B-2
R730	B-3
R731	C-3
R732	B-3
R813	C-8
R814	C-8
R815	C-8
R816	C-8
R817	C-8
R818	C-8
R819	D-8
R820	B-8
R821	C-8
R822	C-8
R825	C-8
R831	D-8
R832	D-8
R834	B-8
R837	D-8
R838	D-8
R839	D-8
R840	D-8
R843	B-8
R844	B-8
R845	B-8
R847	D-8
R848	B-8
R849	D-8
R866	D-7
R867	D-7
R868	B-8
R869	B-7
R870	B-7
R871	D-7
R872	D-7
R873	D-7
R874	B-7
R875	B-7
R876	C-7
R877	C-7
R878	C-7
R879	B-7
R880	B-7
R881	C-7
R882	C-7
R887	B-7
R888	C-7
R889	C-7
R890	C-7
R891	C-7
R892	C-8
R901	D-4
R902	D-4
R903	D-5
R905	D-5
R906	C-5
R907	C-5
R908	C-4
R909	C-5
R910	C-5
R911	C-5
R991	D-9
R912	D-5
R915	C-5
R916	E-5
R917	D-5
R918	C-6
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R930	D-6
R931	D-6
R932	D-6
R933	D-6
R934	D-6
R973	F-9
R974	F-9
R984	D-9
R985	D-6
R986	D-6
R987	D-9
R988	D-6
R989	D-6
R990	D-9
X801	D-8
X802	D-7
X901	E-5

VC-234 BOARD (SIDE B)

C101	A-14
C102	A-15
C103	B-14
C105	A-15
C106	B-15
C107	B-14
C119	A-15
C126	B-15
C128	B-15
C130	B-14
C142	B-14
C143	A-15
C145	A-16
C146	B-14
C147	A-16
C148	B-15
C149	B-16
C150	B-16
C151	B-15
C152	B-15
C153	B-16
C154	A-16
C155	A-16
C156	C-15
C157	B-15
C158	C-15
C159	C-15
C201	D-11
C202	D-11
C203	E-10
C207	E-12
C210	E-11
C213	E-11
C233	E-12
C234	E-12
C237	E-11
C238	E-11
C239	E-13
C240	E-13
C241	E-10
C242	E-10
C244	F-10
C252	G-10
C253	G-12
C254	E-12
C255	E-12
C257	G-12
C258	F-12
C260	G-11
C262	F-13
C263	G-11
C265	G-11
C266	G-11
C291	C-15
C292	C-15
C293	D-15
C401	B-11
C403	B-12
C404	B-12
C405	B-12
C406	B-11
C407	B-11
C408	B-10
C409	A-12
C411	A-12
C412	A-12
C413	B-12
C415	B-11
C416	B-11
C417	B-12
C418	B-11
C419	A-12
C420	B-11
C421	B-12
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C423	A-11
C424	A-12
C425	A-11
C427	A-11
C428	A-12
C429	A-12
C430	A-12
C431	A-11
C433	A-11
C434	A-11
C435	A-11
C436	A-11
C501	F-14
C502	E-14
C503	F-14
C504	F-14
C505	F-13
C507	F-13
C509	F-13
C510	G-13
C512	F-13
C525	F-14
C526	E-14
C553	E-15
C556	E-15
C561	F-15
C569	F-15
C641	C-16
C644	C-16
C645	C-18
C646	C-17
C647	C-16
C648	C-17
C649	C-17
C652	C-17
C653	C-17
C654	C-17
C655	C-17
C656	C-16
C657	C-18
C658	D-15
C659	C-18
C660	C-18
C661	C-18
C662	B-18
C663	B-17
C665	B-17
C666	B-17
C667	B-17
C668	B-17
C669	B-17
C704	B-17
C751	A-17
C752	A-17
C752	A-17
C753	A-17
C754	A-17
C755	A-17
C756	A-18
C758	A-17
C759	B-17
C760	B-17
C761	B-17
C762	B-17
C763	B-17
C765	A-17
C766	A-18
C767	B-17
C768	B-18
C769	A-18
C770	A-18
C771	B-18
C772	A-18
C773	B-18
C774	A-18
C775	A-17
C777	A-18
C778	A-18
C781	A-18
C782	A-16
C801	C-11
C802	C-12
C803	C-11
C804	B-11
C805	B-11
C806	C-12
C807	C-11
C809	B-11
C810	B-11
C811	B-11
C813	B-11
C814	B-11
C818	B-11
C907	D-13
C915	D-13
C973	G-15
C974	G-15
CN971	A-18
CN973	G-15
CN980	F-10
CN982	D-10
D201	E-11
D202	E-10
D203	F-13
D401	B-10
D501	F-13
D502	E-14
D801	B-12
D802	B-12
D803	D-12
D804	C-11
D805	B-11
D971	G-15
D972	G-15
FB103	B-16
FB104	B-16
FB202	E-13
FB203	F-12
FB204	F-12
FB205	E-12
FB207	E-12
FB291	D-15
FB501	E-13
FB505	E-14
FB801	C-12
FB901	D-13
IC102	B-16
IC203	F-12
IC204	G-10
IC205	E-10
IC291	D-15
IC401	A-11
IC501	F-14
IC551	F-15
IC641	C-17
IC751	A-17
IC801	C-12
IC802	B-11
IC901	D-14
L101	A-14
L102	B-14
L103	A-15
L104	B-14
L105	A-16
L107	C-15
L204	E-13
L205	E-13
L206	D-11
L208	E-13
L209	F-10
L501	E-13
L551	E-15
L552	E-15
L641	C-16
L643	C-18
L751	B-18
L752	B-17
L753	B-18
L754	A-18
Q105	B-14
Q106	B-14
Q107	A-15
Q108	A-15
Q109	B-15
Q110	B-15
Q111	C-15
Q112	A-14
Q113	A-14
Q203	E-11
Q211	E-11
Q213	E-12
Q214	G-10
Q552	F-15
Q553	F-15
Q801	C-11
Q802	C-11
Q803	C-11
Q804	D-12
Q805	C-11
Q806	C-11
Q972	F-10
Q973	F-10
R103	B-14
R104	B-15
R106	B-14
R107	B-15
R108	B-15
R109	B-14
R129	A-15
R130	A-16
R131	A-15
R132	A-16
R133	B-14
R134	A-16
R135	B-14
R136	A-15
R137	A-16
R138	B-15
R139	B-16
R140	B-16
R141	B-15
R142	B-15
R143	B-16
R144	B-16
R145	B-16
R146	C-15
R147	C-15
R148	B-15
R149	B-15
R150	B-15
R151	B-15
R152	B-15
R153	B-15
R155	C-15
R156	C-15
R204	E-11
R205	E-11
R222	G-12
R223	G-12
R224	E-11
R229	E-11
R232	E-11
R251	E-11
R252	E-11
R253	E-10
R260	G-10
R261	G-12
R262	G-12
R264	F-13
R265	E-12
R266	E-11
R270	F-13
R271	E-12
R274	G-10
R275	F-11
R276	F-10
R277	F-10
R278	D-13
R279	F-10
R280	E-12
R283	G-13
R408	B-12
R409	B-12
R410	B-12
R412	B-11
R413	B-11
R417	A-11
R419	A-11
R423	A-11
R424	A-11
R425	A-12
R426	A-12
R427	A-11
R428	A-12
R429	A-12
R430	A-11
R431	A-11
R433	A-11
R434	A-12
R435	A-12
R501	E-14
R502	E-14
R503	F-14
R512	F-13
R518	F-14
R519	E-14
R558	F-15
R559	F-15
R648	C-18
R650	C-16
R651	C-17
R652	C-16
R653	C-18
R655	B-17
R656	B-17
R657	B-17
R658	B-17
R719	B-16
R755	B-17
R756	B-16
R757	A-16
R758	A-17
R759	A-17
R760	B-17
R761	A-17
R762	A-18
R763	A-17
R764	B-17
R765	B-17
R766	A-17
R767	B-18
R768	A-18
R770	A-18
R771	A-18
R772	A-18
R773	A-18
R774	A-18
R775	B-18
R776	A-17
R777	A-17
R801	C-11
R802	C-11
R803	D-12
R805	C-11
R806	C-11
R807	C-11
R808	C-12
R809	C-11
R810	C-11
R811	D-12
R812	C-11
R823	C-11
R824	B-12
R833	B-11
R835	B-12
R836	B-11
R865	C-11
R886	B-12
R904	D-14
R913	E-14
R914	E-14
R921	D-13
R935	E-14
R971	G-14
R972	G-15
R975	G-10
R976	F-10
R977	C-12
R978	B-12
R979	C-13
R980	B-12
R981	B-12
R982	D-10
R983	D-10
R992	B-13
R993	B-12
R995	B-12
R997	B-11
R998	C-13
X501	F-13
X641	B-18

CF-66 BOARD (SIDE A)

C001	B-6
C002	B-6
C003	C-5
C004	C-4
C008	D-6
CN010	D-5
D001	A-1
D003	D-8
D004	B-4
D005	B-6
D006	A-6
D007	B-7
D008	D-6
D009	C-6
IC001	C-5
L001	D-4
L004	C-6
L005	B-6
Q001	D-4
Q002	D-6
Q003	C-6
R001	D-4
R002	D-6
R003	C-6
R004	D-6
R009	D-6
R010	D-6
R011	C-5
R012	B-4
R013	B-3
R014	B-2
R015	C-3
R016	B-4
R017	B-4
R018	B-2
R019	C-3
R020	B-4
R021	C-2
R025	C-2
R032	B-1
R033	B-1
R038	D-4
R039	D-4
R040	C-4
R041	C-4
R042	C-6
R043	C-6
R044	D-6
R045	D-6
R046	D-6
R047	D-6
S001	B-4
S002	D-8
S003	B-5
S005	D-8
S008	B-9
S009	B-1
S010	B-3
S011	D-9
S012	C-1
S014	B-5
S015	B-6
S016	B-7

CF-66 BOARD (SIDE B)

BH001	B-13
BZ001	B-17
BZ002	C-17
C005	D-13
C006	D-12
C007	D-11
C009	C-15
CN001	C-13
CN002	A-18
CN006	D-13
CN007	D-15
CN008	C-16
D002	C-12
L002	D-13
L003	D-11
Q004	D-12
Q005	D-12
Q006	D-12
R005	B-15
R006	B-16
R007	B-16
R008	B-16
R022	C-16
R023	C-16
R026	C-16
R027	D-12
R028	D-12
R029	D-12
R030	D-12
R034	C-16
R035	D-12
R036	D-12
R037	D-11
R048	D-16
S006	C-11
S007	D-11

CF-67 BOARD (SIDE A)

BH001	D-5
D001	A-1
D004	A-4
D007	A-5
LND001	A-6
R002	A-4
R004	B-4
R006	A-4
R008	B-4
R013	B-5
R014	A-5
R017	A-5
R019	B-6
R020	A-3
R022	B-6
R027	B-5
R036	B-5
R043	C-1
S001	A-3
S002	B-3
S004	A-5
S005	B-4
S006	B-6
S008	B-6
S009	A-7
S011	A-6
S012	B-3
S014	B-5

CF-67 BOARD (SIDE B)

C001	D-12
C002	D-10
C003	D-10
C004	D-12
C005	C-13
C006	C-12
C007	D-12
C008	C-13
C009	C-12
CN001	B-11
CN002	A-14
CN003	D-11
CN004	C-14
CN005	B-14
CN006	D-12
CN007	C-12
CN008	D-13
CN009	B-13
D002	D-11
D003	B-9
D005	D-10
D006	D-10
D008	D-11
D009	D-10
JL001	C-11
JL002	D-11
L001	D-12
L002	C-13
L003	D-12
LND002	A-13
Q001	B-13
Q002	C-10
Q003	C-10
Q004	C-13
Q005	C-12
Q006	D-12
R001	C-13
R003	C-9
R005	C-9
R007	B-9
R009	C-10
R010	C-10
R011	C-10
R012	C-9
R015	C-10
R016	C-10
R018	C-9
R021	D-9
R023	C-13
R024	D-12
R026	D-9
R028	C-13
R029	C-13
R030	D-12
R031	D-12
R032	C-13
R034	D-9
R035	D-9
R037	C-13
R038	C-13
R039	C-12
R040	C-12
R041	C-12
R042	C-13
R044	C-13
R048	C-12
S003	C-8
S007	C-8
S010	D-8
S013	E-8

EJ-29/30 BOARD (SIDE A)

J251	B-4

EJ-29/30 BOARD (SIDE B)

CN251	A-8
CN252	B-8
CN253	A-7
D251	B-6
D252	A-6
D253	B-6
D254	A-7
D255	B-7
D256	B-6
D257	B-6
FB251	B-6
FB252	A-6
FB253	B-6
LND251	A-6
R251	B-8
R252	B-8
R253	B-7
R254	B-7
R255	A-7
R256	A-7
R256	B-8
R257	A-8
R259	B-7
S251	B-7

PJ-99/100 BOARD (SIDE A)

J101	C-1

PJ-99/100 BOARD (SIDE B)

C101	C-4
C102	D-4
C103	B-4
C104	A-3
C105	B-3
C106	B-4
C107	E-3
C108	E-4
CN101	C-3
D101	D-4
D102	E-4
D103	E-4
D104	E-3
D105	B-4
L101	C-3
L102	C-4
L104	B-3
L105	B-3
LND101	B-4
Q101	E-3
Q102	D-3
R102	D-3
R103	D-4
R104	D-3
R105	D-3
R108	E-4
R109	C-3
VDR101	C-4
VDR102	A-3

SE-101 BOARD (SIDE A)

C453	C-3
C454	D-3
C460	C-3
C465	A-2
C466	A-2
CN451	A-3
J451	A-2
L451	B-3
L452	A-3
L453	A-2
R461	A-3
SE451	C-3
SE452	E-4
VDR451	A-3
VDR452	A-2

SE-101 BOARD (SIDE B)

C451	B-6
C452	D-7
C455	C-7
C456	C-7
C457	C-7
C459	C-7
C461	D-6
C462	B-7
C463	C-6
C464	B-7
IC451	C-7
LND451	A-7
R451	B-6
R452	D-7
R453	D-7
R454	B-6
R455	C-6
R456	C-7
R457	C-7
R458	C-6
R459	C-6
R460	B-7

VL-29 BOARD (SIDE A)

C151	A-2
C153	A-2
D151	A-2
D152	A-2
L151	A-2
Q151	A-2
R153	A-2
R154	A-2

VL-29 BOARD (SIDE B)

C152	A-3
CN151	A-3
D153	A-4
LND151	B-4
LND152	B-4
LND153	A-4
LND154	B-3
LND155	B-3
Q152	A-3
R151	A-3
R152	A-3

MA-374/375 BOARD (SIDE A)

C306	B-4
C323	C-2
C324	C-2
C326	C-2
C329	C-2
C333	C-2
C336	B-2
C339	C-2
C340	C-2
C341	C-3
C342	B-2
C343	D-2
C344	D-2
C345	D-2
C346	D-2
C347	D-2
C348	D-2
C353	B-3
C354	B-3
C356	B-3
C357	E-2
C359	B-4
C360	B-3
C365	D-2
D302	A-3
D303	A-3
D304	B-2
D305	B-4
D306	B-3
D307	E-2
D321	C-2
D322	C-2
IC301	A-4
IC322	B-3
J321	B-1
LND301	A-3
Q322	B-2
R321	C-2
R322	B-2
R324	B-2
R325	C-2
R326	C-2
R329	C-2
R330	C-2
R334	C-2
R340	B-2
R342	C-2
R343	C-2
R344	C-2
R345	C-3
R346	B-3
R347	B-2
R348	C-2
R349	C-2
R350	D-2
R351	D-2
R352	D-2
R353	D-2
R354	D-2
R355	D-2
R358	B-3
R359	D-2
R361	D-2
R362	D-2
R363	C-2
S301	D-1

MA-374/375 BOARD (SIDE B)

C301	A-7
C302	B-6
C303	A-7
C304	A-6
C305	B-7
C321	A-8
C322	C-7
C325	C-7
C327	C-8
C328	C-8
C330	C-7
C331	C-8
C332	C-9
C334	C-7
C335	C-9
C337	C-7
C338	C-9
C349	C-7
C351	D-8
C352	D-8
C355	D-8
C358	B-6
C361	D-8
C362	C-8
C363	C-8
C364	C-8
CN301	B-7
CN302	B-8
D323	A-8
F301	A-7
IC321	C-8
L301	B-7
Q301	A-6
Q302	A-6
Q303	B-6
Q304	B-7
Q321	C-7
R301	A-6
R302	A-6
R303	B-6
R304	A-6
R305	A-6
R306	A-7
R307	B-6
R308	B-7
R309	B-7
R310	B-6
R311	B-6
R312	A-8
R313	B-6
R314	D-8
R315	E-8
R323	B-8
R327	C-7
R328	C-7
R331	C-8
R332	C-7
R333	C-7
R335	C-7
R336	C-9
R337	C-7
R338	C-7
R339	C-9
R356	D-8
R357	D-8
R360	D-8
R364	D-8
R365	D-8
S302	D-8
S303	C-6

PD-117 BOARD (SIDE A)

C5502	B-4
C5504	C-4
C5505	A-5
C5506	A-5
C5507	A-5
C5515	C-4
C5516	C-4
C5520	B-5
C5521	B-3
C5522	B-3
C5523	D-4
C5524	B-4
C5528	B-4
C5530	C-5
C5531	C-5
C5706	C-3
C5707	C-3
C5708	C-3
C5709	D-3
C5710	D-3
CN5501	D-5
CN5502	B-5
CN5604	D-1
CN5701	A-2
CN5702	A-5
CN5703	A-1
CN5704	A-3
CN5705	A-3
CN5706	D-3
D5502	C-4
FB5502	A-4
IC5502	C-4
IC5503	C-4
IC5702	C-3
L5505	C-4
L5601	D-2
L5702	C-3
LND701	D-2
LND702	B-1
Q5502	B-4
Q5503	C-5
Q5504	C-5
Q5505	C-5
Q5506	C-5
Q5607	D-1
R5512	C-4
R5513	C-4
R5516	B-5
R5517	C-5
R5521	C-5
R5553	C-5
R5559	C-4
R5561	B-3
R5562	C-5
R5563	B-3
R5563	C-5
R5564	C-5
R5565	C-5
R5566	D-5
R5567	C-5
R5569	B-5
R5702	A-5
R5715	D-3
R5716	C-3
T5601	C-1

PD-117 BOARD (SIDE B)

C5501	A-8
C5503	A-7
C5508	C-8
C5509	B-8
C5510	B-7
C5511	B-8
C5512	B-8
C5513	B-7
C5514	B-8
C5517	B-7
C5518	B-7
C5519	B-8
C5525	A-8
C5526	A-8
C5527	B-7
C5529	C-8
C5601	C-9
C5604	B-10
C5605	D-10
C5606	D-10
C5608	B-10
C5612	B-10
C5704	B-9
D5501	C-8
D5503	C-8
D5601	D-10
D5602	D-11
D5603	A-11
D5604	A-10
D5701	C-9
FB5503	B-8
IC5501	B-8
IC5601	C-9
IC5602	D-10
IC5701	B-9
L5501	A-8
L5504	B-8
L5701	B-10
LND703	B-11
LND704	D-10
LND705	A-11
Q5501	C-8
Q5601	C-9
Q5602	C-10
Q5603	D-10
Q5604	D-10
Q5701	C-9
R5501	A-7
R5502	A-8
R5503	A-8
R5504	C-8
R5505	B-7
R5506	B-8
R5507	B-8
R5508	B-8
R5509	B-8
R5510	B-8
R5511	B-8
R5514	C-7
R5515	C-7
R5518	C-7
R5519	D-8
R5520	D-8
R5522	C-7
R5523	C-7
R5524	C-7
R5525	C-7
R5551	C-8
R5557	A-8
R5558	B-8
R5560	C-8
R5603	C-9
R5609	C-9
R5610	C-10
R5611	C-10
R5612	D-10
R5613	C-10
R5614	C-9
R5616	D-10
R5617	D-10
R5618	D-10
R5619	A-11
R5620	A-10
R5704	D-7
R5706	C-7
R5707	A-7
R5708	A-7
R5710	A-10
R5711	A-9
R5712	B-9
R5713	A-8
R5714	A-9
R5717	D-9
S5701	D-7
S5702	C-7
S5703	B-7
S5704	A-7

VF-129 BOARD (SIDE A)

C903	A-2
C904	B-2
C906	A-2
C907	A-1
C909	B-1
C913	A-2
CN902	B-1
D901	A-1
IC901	A-1
L901	B-1
L903	D-1
R903	A-1
R907	B-1
R908	B-2
R909	B-2
R910	B-2
R912	A-2
R913	C-2
R914	C-2
R915	B-1
R916	A-1
R917	A-1
R922	E-1
R927	B-1
R928	B-1
R929	A-1
R930	C-1
R931	C-1
R932	C-1
RV903	C-2
RV904	D-1
T901	D-1
T902	D-1
TH901	B-2
W901	D-2

VF-129 BOARD (SIDE B)

C901	A-3
C902	A-3
C905	A-3
C908	C-2
C910	C-3
C911	C-3
C912	B-3
C914	D-3
C915	E-3
C916	C-3
CN901	B-3
D903	D-3
L902	B-3
Q901	A-2
Q902	B-2
Q903	C-3
Q904	C-2
R901	A-3
R902	A-3
R904	A-3
R905	A-2
R906	A-2
R911	A-3
R918	C-2
R919	C-2
R920	C-2
R921	D-2
R923	E-3
R924	C-3
R925	C-3
R926	D-2

VF-141 BOARD (SIDE A)

C4501	B-1
C4504	B-1
C4510	B-2
C4515	B-2
C4516	B-2
C4517	A-2
C4521	A-2
C4524	A-2
C4527	B-1
CN4502	A-2
D4501	B-2
D4502	B-2
D4503	A-2
D4504	A-2
FB4505	B-1
IC4502	A-2
L4501	B-1
L4504	B-2
Q4502	A-1
Q4503	A-1
Q4504	B-2
R4505	A-1
R4506	A-1
R4507	A-1
R4508	B-1
R4522	B-2
R4524	A-2
R4525	A-2
R4529	A-2
R4530	A-1
R4534	A-1
R4535	A-1
R4542	A-1
R4543	A-2
R4544	B-1

VF-141 BOARD (SIDE B)

C4503	A-5
C4505	A-5
C4506	A-5
C4507	B-5
C4508	B-5
C4509	B-5
C4511	B-4
C4512	B-4
C4513	A-4
C4514	A-4
C4518	A-4
C4519	A-4
C4520	A-4
C4523	B-4
C4526	A-5
CN4501	B-5
FB4502	A-4
IC4501	A-4
R4513	A-4
R4515	B-4
R4516	B-4
R4517	B-4
R4518	B-4
R4520	B-4
R4521	B-4
R4526	A-4
R4527	A-4
R4528	A-4

LB-62 BOARD (SIDE A)

D4601	B-2
D4602	A-1
ND4601	A-1
R4603	A-2

LB-62 BOARD (SIDE B)

C4601	A-3
C4602	A-3
C4603	A-3
C4604	A-4
CN4601	A-4
IC4601	A-4
L4601	B-3
L4602	B-3
Q4601	A-3
R4601	A-4
R4602	B-3
R4604	A-3
T4601	B-4

DD-134 BOARD (SIDE A)

C306	C-1
C307	B-1
C310	C-3
C321	D-3
C327	D-2
C335	B-2
C339	D-3
C344	A-2
C345	A-2
C349	A-2
C350	A-2
C352	C-3
C355	A-1
C358	A-3
C360	A-3
C361	A-1
C363	A-1
C364	A-3
CN301	C-1
D301	B-1
D302	B-1
D304	C-1
D305	C-3
D306	C-2
D308	B-2
D309	A-2
D310	A-2
D311	A-2
D312	B-2
D313	B-2
F302	D-2
F303	D-3
F304	D-3
F305	D-3
F306	D-2
FB321	A-1
L301	B-3
L302	C-2
L304	B-3
L305	C-3
L306	C-3
L318	C-3
L319	A-1
LND302	A-2
LND308	B-2

Q301	C-3
Q302	C-2
Q303	C-2
Q304	D-2
Q305	C-1
Q316	D-3
Q322	A-3
Q323	B-3
Q325	B-3
Q327	B-1
Q328	B-1
Q329	A-3
Q330	A-2
Q331	A-3
Q332	B-1
Q333	A-3
R303	B-1
R309	C-3
R310	C-3
R313	C-2
R316	D-2
R317	D-2
R319	D-2
R329	A-3
R332	A-2
R333	A-3
R334	A-2
R336	B-3
R337	A-3
R338	A-3
R339	A-1
R340	A-2
R341	A-3
R342	A-1
R343	A-2
R344	B-1
R345	B-1
R346	B-1
R347	A-3
R348	A-3
R349	A-3
R350	A-3
T301	B-2

DD-134 BOARD (SIDE B)

C301	D-6
C302	D-6
C303	D-5
C304	D-5
C305	D-5
C308	D-5
C309	D-6
C311	D-6
C312	C-5
C313	C-6
C314	C-5
C315	C-6
C316	C-5
C317	C-6
C318	C-5
C323	C-6
C324	C-5
C325	C-5
C326	C-5
C328	B-6
C329	B-5
C330	B-5
C331	D-6
C332	B-5
C333	B-6
C336	B-5
C337	C-5
C338	B-5
C340	C-6
C341	C-6
C342	A-6
C343	C-6
C346	A-5
C347	B-6
C348	A-6
C351	B-6
C353	A-6
C354	A-5
C356	A-5
C362	A-6
C367	D-5
C366	A-6
CN933	A-7
D307	D-6
D314	D-6
FB310	C-6
FB320	A-7
IC301	C-5

L303	C-6
L307	B-6
L308	B-6
L309	B-6
L313	A-5
L314	A-5
L315	A-6
L316	A-5
L317	A-6
Q306	D-6
Q307	B-6
Q308	B-5
Q309	C-5
Q310	B-6
Q311	B-5
Q312	C-5
Q313	C-6
Q315	C-6
Q317	A-6
Q318	A-5
Q319	A-5
Q321	A-6
R301	D-6
R302	D-5
R304	C-6
R305	D-5
R306	D-6
R307	C-4
R311	D-6
R312	C-5
R314	C-6
R315	C-5
R318	C-6
R320	D-6
R321	D-6
R322	C-6
R323	A-5
R324	A-6
R325	A-6
R326	A-6
R327	A-5
R328	A-5
R330	D-6
R331	C-5
R335	D-6
R353	D-5
R354	D-5
R355	D-6
R356	B-6
R357	A-6
R358	A-6

SECTION 5
ADJUSTMENTS

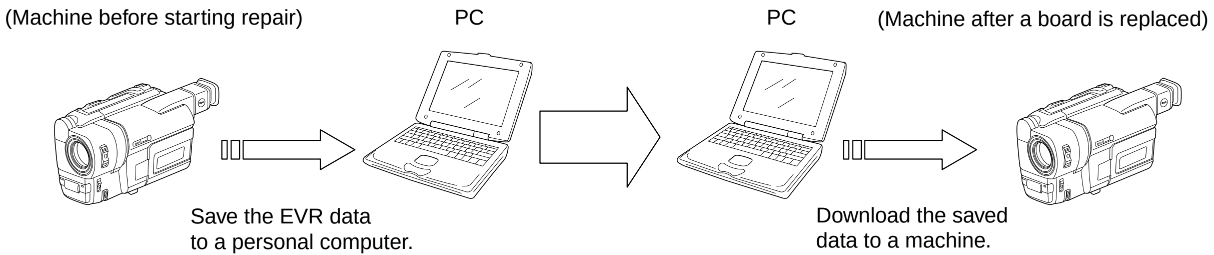
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

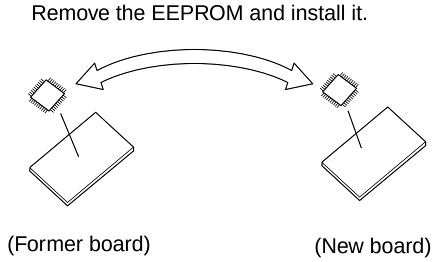
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.


(Machine before starting repair)
PC
PC
(Machine after a board is replaced)
Save the EVR data
to a personal computer.
Download the saved
data to a machine.

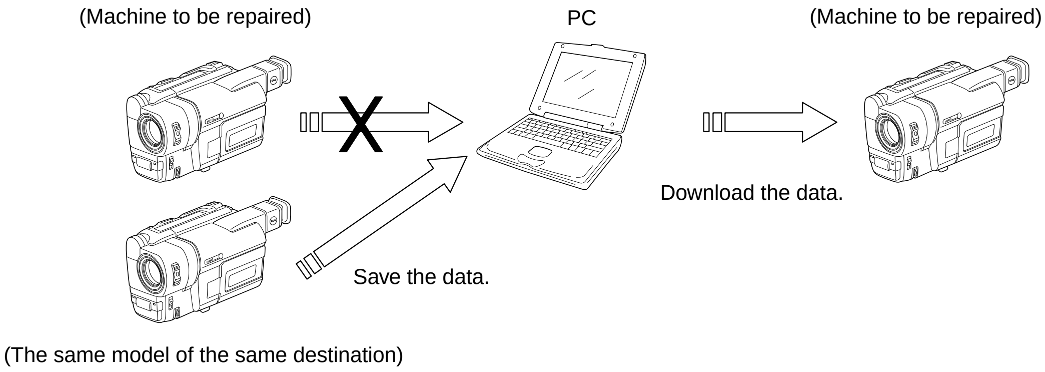
Procedure 2

Remove the EEPROM from the board of the machine that is going to be replaced. Install the removed EEPROM to the replaced board.


Remove the EEPROM and install it.
(Former board)
(New board)

Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.


(Machine to be repaired)
PC
(Machine to be repaired)
X
Download the data.
Save the data.
(The same model of the same destination)

After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts																								
		Block replacement								Parts replacement																
		Lens device	Mechanism deck	LCD block (*3) LCD901 (LCD panel)	LCD block (*3) ND901 (Fluorescent tube)	Color EVF block (*1) LCD903 (LCD panel)	B/W EVF block (*2) V901 (Picture tube)	Mechanism deck M901 (Drum assy)	Mechanism deck M902 (Capstan motor)	CD-239/240 board IC201 (CCD imager)	PD-117 board (*3) IC5501 (RGB decoder (LCD))	PD-117 board (*3) IC5502 (Timing generator (LCD))	SE-101 board (*5) SE451,452 (PITCH,YAW sensor)	VC-234 board IC501, X501 (Timing generator)	VC-234 board IC502 (S/H, AGC, A/D conv.)	VC-234 board IC201 (Y, C process)	VC-234 board IC205 (VCO)	VC-234 board IC641 (Y, C IN/OUT)	VC-234 board IC101 (REC/PB AMP)	VC-234 board (*6) IC751 (IR transmitter)	VC-234 board IC701 (AFM Audio process)	VF-129 board (*2) IC901 (CRT driver)	VF-129 board (*2) T901 (FBT)	VF-141 board (*1) IC4501 (RGB decoder (EVF))	VF-141 board (*1) IC4502 (Timing generator (EVF))	LB-62 board (*1) ND4601 (Fluorescent tube (EVF))
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data																									
Camera	Hall adj.	●																								
	Flange back adj.	●								●																
	Color reproduction adj.									●					●											
	AWB & LV standard data input									●					●											
	Auto white balance adj.									●					●											
	Steady shot check (*5)												●													
Color EVF (*1)	EVF Initial data input																									
	VCO adj.																								●	
	RGB AMP adj.																							●		
	Contrast adj.																							●		
	Backlight consumption current adj.																							●		
	White balance adj.					●																		●		●
B/W EVF (*2)	Centering adj.						●															●	●			
	Focus adj.						●															●	●			
	Aberration adj.						●															●	●			
	Horizontal amplitude adj.						●															●	●			
	Vertical amplitude adj.						●															●	●			
	Brightness adj.						●															●	●			
LCD (*3)	LCD Initial data input																									
	VCO adj.											●														
	RGB AMP adj.										●															
	Contrast adj.										●															
	COM AMP adj.										●															
	V-COM adj.			●							●															
	White balance adj.			●	●						●															
Servo	CAP FG offset adj.		●						●																	
	Switching position adj.		●					●																		
Video	28MHz origin oscillation adj.													●												
	AFC f_0 adj.															●	●									
	Filter f_0 adj.																	●								
	Y OUT level adj.															●		●								
	C OUT level adj.															●		●								
	REC Y current adj.															●			●							
	REC C/AFM current adj.															●			●							
IR (*6)	IR video carrier frequency adj.																	●		●						
	IR video deviation adj.																	●		●						
	IR audio deviation adj.																			●						
Audio	1.5MHz deviation adj.																				●					
	1.7MHz deviation adj. (*4)																				●					
	BPF f_0 adj.																				●					
Mechanism	Tape path adj.		●					●	●																	

Table. 5-1-1(1).

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts						
		Board replacement						
		SE-101 board (*5) (COMPLETE)	VC-234 board (COMPLETE)	PD-117 board (*3) (COMPLETE)	VF-129 board (*2) (COMPLETE)	VF-141 board (*1) (COMPLETE)	LB-62 board (*1) (COMPLETE)	VC-234 board IC901 (EEPROM)
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data							●
Camera	Hall adj.		●					●
	Flange back adj.		●					●
	Color reproduction adj.		●					●
	AWB & LV standard data input		●					●
	Auto white balance adj.		●					●
	Steady shot check (*5)	●	●					●
Color EVF (*1)	EVF Initial data input		●					●
	VCO adj.		●			●		●
	RGB AMP adj.		●			●		●
	Contrast adj.		●			●		●
	Backlight consumption current adj.		●			●		●
	White balance adj.		●			●	●	●
B/W EVF (*2)	Centering adj.				●			
	Focus adj.				●			
	Aberration adj.				●			
	Horizontal amplitude adj.				●			
	Vertical amplitude adj.				●			
	Brightness adj.				●			
LCD (*3)	LCD Initial data input		●					●
	VCO adj.		●	●				●
	RGB AMP adj.		●	●				●
	Contrast adj.		●	●				●
	COM AMP adj.		●	●				●
	V-COM adj.		●	●				●
	White balance adj.		●	●				●
Servo	CAP FG offset adj.		●					●
	Switching position adj.		●					●
Video	28MHz origin oscillation adj.							●
	AFC f_0 adj.							●
	Filter f_0 adj.							●
	Y OUT level adj.							●
	C OUT level adj.							●
	REC Y current adj.							●
	REC C/AFM current adj.							●
IR (*6)	IR video carrier frequency adj.							●
	IR video deviation adj.							●
	IR audio deviation adj.							●
Audio	1.5MHz deviation adj.							●
	1.7MHz deviation adj. (*4)							●
	BPF f_0 adj.							●
Mechanism	Tape path adj.							

Table. 5-1-1(2).

*1: Color EVF model (CCD-TR517) only.
*2: B/W EVF model (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P/TR317) only.
*3: TRV model (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) only.
*4: STEREO model (CCD-TRV87/TRV87P) only.
*5: STEADY SHOT model (CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P) only.
*6: LASER LINK model (CCD-TRV87/TRV87P) only.

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

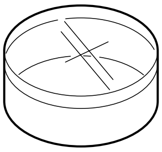
- Oscilloscope
- Regulated power supply
- Color monitor
- Digital voltmeter
- Vectorscope

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC-7 jig	J-6082-382-A	For adjusting the video section For adjusting the color viewfinder
J-10	Power code (Note2)	J-6082-223-A	For connecting the battery terminal and DC power supply
J-11	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-12	IR receiver jig	J-6082-383-A	For adjusting the IR transmitter

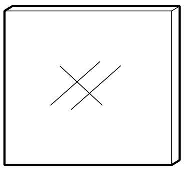
Note1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note2: Connect the adjustment remote commander to the LANC jack, and set to HOLD switch to the “ADJ” side.

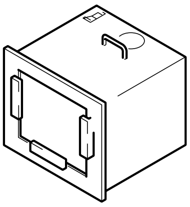
J-1



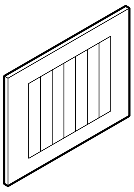
J-2



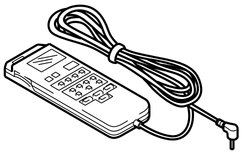
J-3



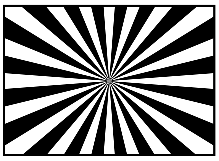
J-4



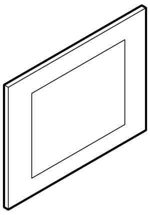
J-5



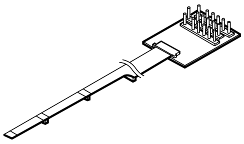
J-6



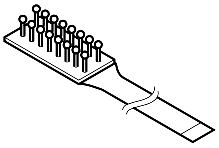
J-7



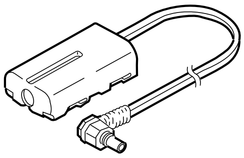
J-8



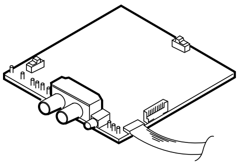
J-9



J-10



J-11



J-12

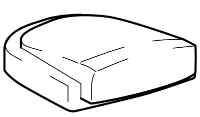


Fig. 5-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to “2. DISASSEMBLY”.

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note3: TR model / TRV model
TR model: CCD-TR317/TR517
TRV model: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P

1) Connect the equipment for adjustments according to Fig. 5-1-3, 5-1-4.
2) By setting the “Forced Camera Power ON mode”, the camera power can be turned ON even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.
   1. VC-234 board CN972 (20P 0.5mm)

Note4: As removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to “SELF-DIAGNOSIS FUNCTION” for the self-diagnosis data, and refer to “5-4. Service Mode” for the data on the history use.)

Note5: Setting the “Forced Camera Power ON” Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed. After completing adjustments, be sure to exit the “Forced Camera Power ON Mode”.

Note6: Exiting the “Forced Camera Power ON” Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

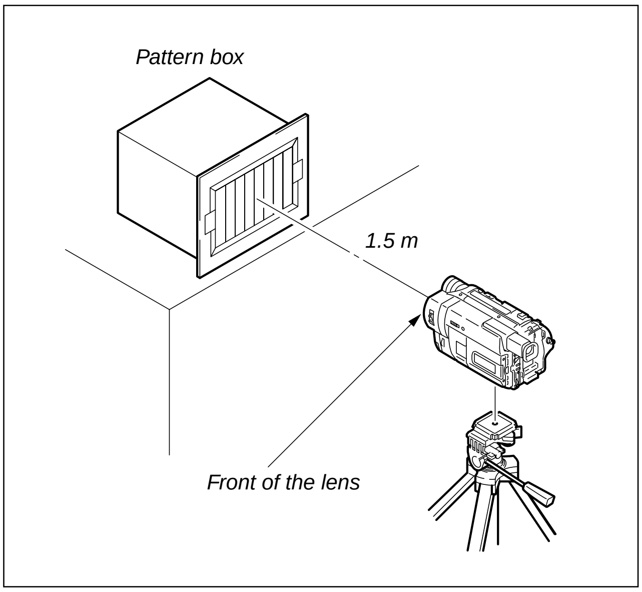


Fig. 5-1-2.

TRV model (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)

*1: Press the battery switch of the battery terminal using adhesive tape, etc.
*2: CCD-TRV87/TRV87P model only.
*3: Except CCD-TRV47 model.
*4: Except CCD-TRV17/TRV37/TRV47 model.

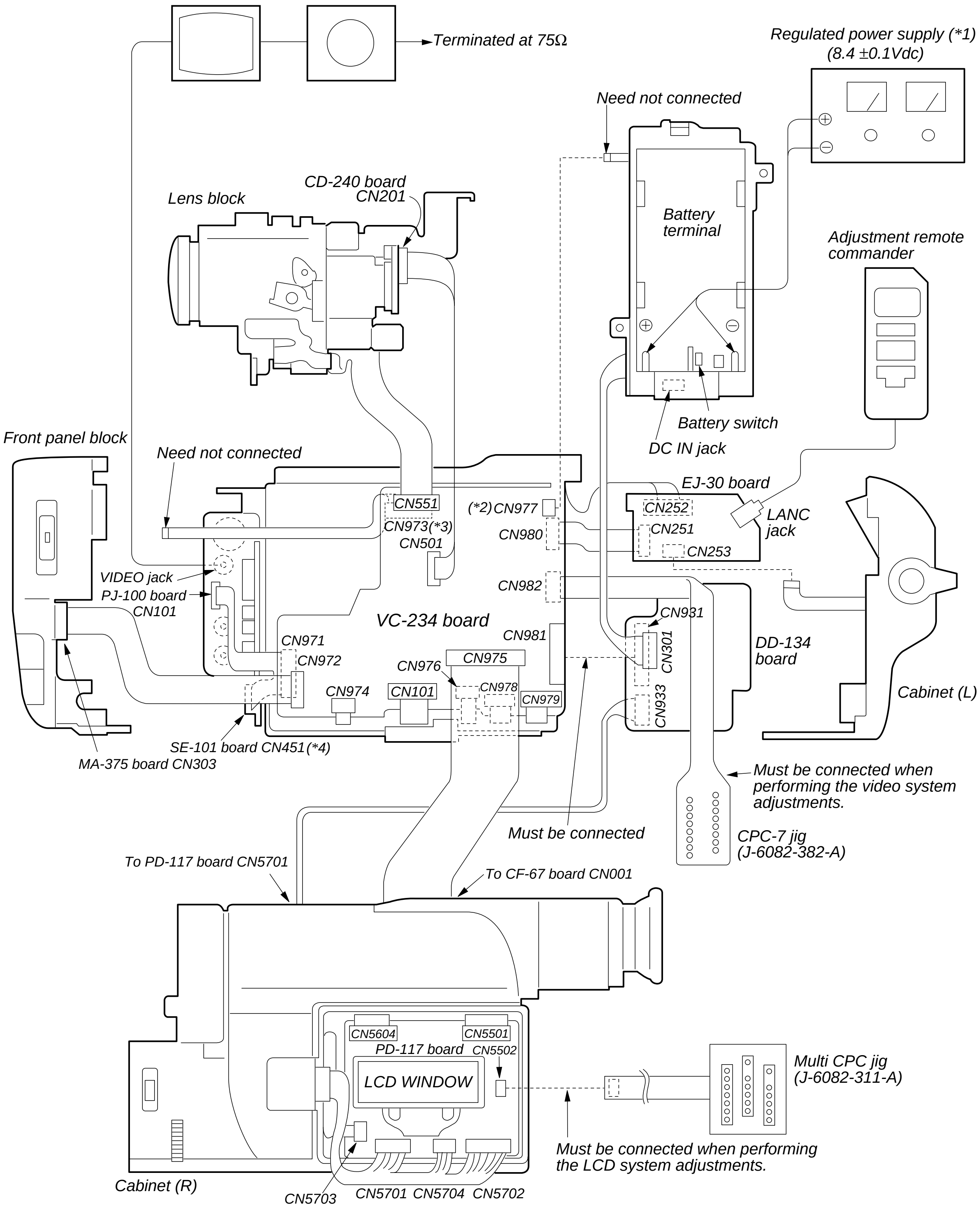
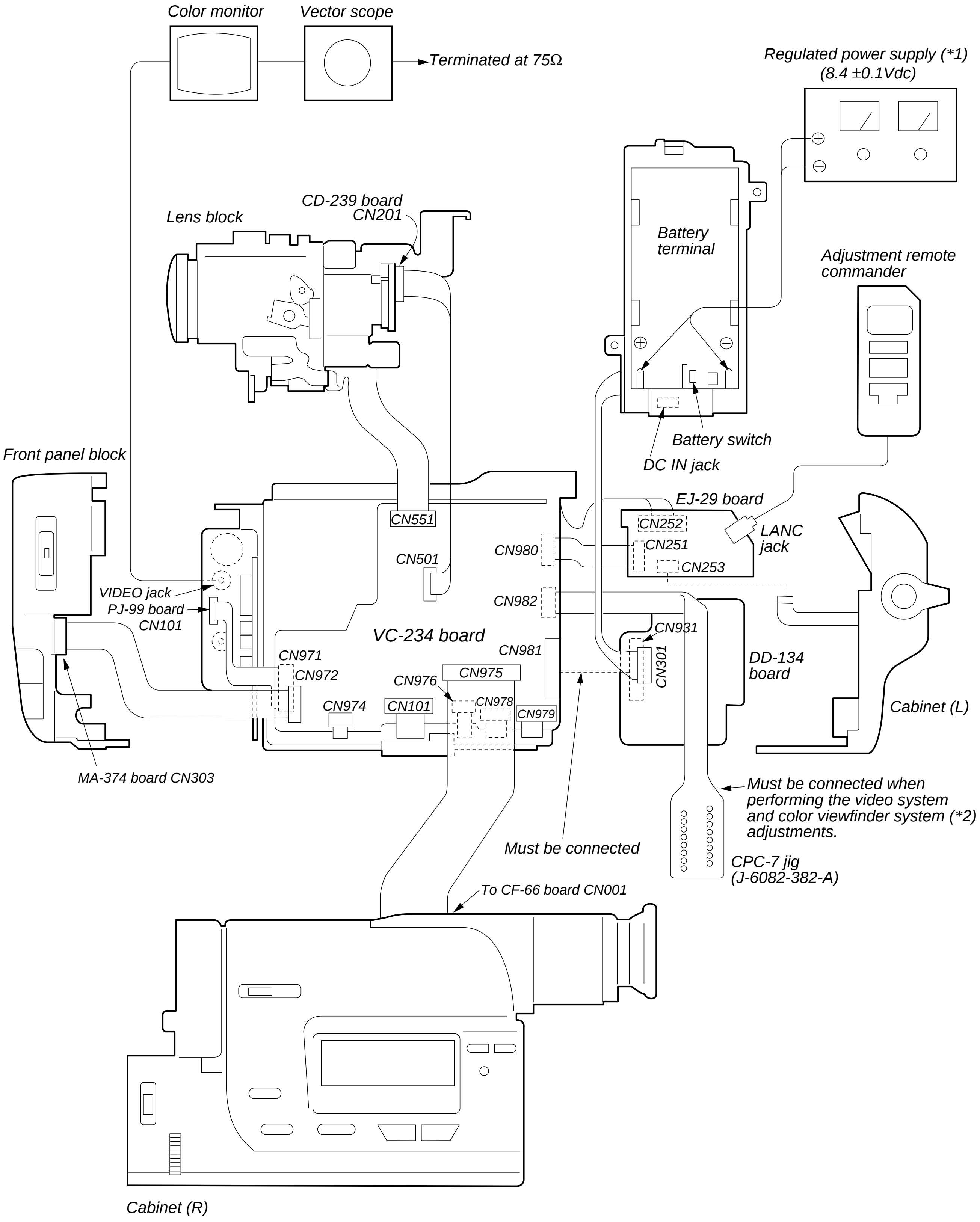

Color monitor
Vector scope
Terminated at 75Ω
Regulated power supply (*1)
(8.4 ±0.1Vdc)
Need not connected
Battery terminal
Adjustment remote commander
CD-240 board
CN201
Lens block
Battery switch
DC IN jack
Front panel block
Need not connected
EJ-30 board
CN252
LANC jack
CN551
(*2) CN977
CN980
CN251
CN253
CN973(*3)
CN501
VIDEO jack
PJ-100 board
CN101
CN982
CN931
VC-234 board
CN981
DD-134 board
CN971
CN972
CN976
CN975
CN301
CN974
CN101
CN978
CN979
CN933
Cabinet (L)
SE-101 board CN451(*4)
MA-375 board CN303
Must be connected when performing the video system adjustments.
Must be connected
CPC-7 jig
(J-6082-382-A)
To PD-117 board CN5701
To CF-67 board CN001
CN5604
CN5501
PD-117 board
CN5502
LCD WINDOW
Multi CPC jig
(J-6082-311-A)
Must be connected when performing the LCD system adjustments.
Cabinet (R)
CN5703
CN5701
CN5704
CN5702

Fig. 5-1-3.

TR model (CCD-TR317/TR517)


*1: Press the battery switch of the battery terminal using adhesive tape, etc.
*2: CCD-TR517 model only.

Color monitor
Vector scope
Terminated at 75Ω
Regulated power supply (*1)
(8.4 ±0.1Vdc)
⊕
⊖
Lens block
CD-239 board
CN201
Battery terminal
Adjustment remote commander
Battery switch
DC IN jack
Front panel block
EJ-29 board
CN252
LANC jack
CN251
CN253
CN551
CN501
CN980
CN982
VIDEO jack
PJ-99 board
CN101
VC-234 board
CN931
CN301
DD-134 board
CN981
CN971
CN972
CN975
CN976
CN974
CN101
CN978
CN979
Cabinet (L)
MA-374 board CN303
Must be connected when performing the video system and color viewfinder system (*2) adjustments.
Must be connected
CPC-7 jig
(J-6082-382-A)
To CF-66 board CN001
Cabinet (R)

Fig. 5-1-4.

1-1-3. Precaution

1. Setting the Switch

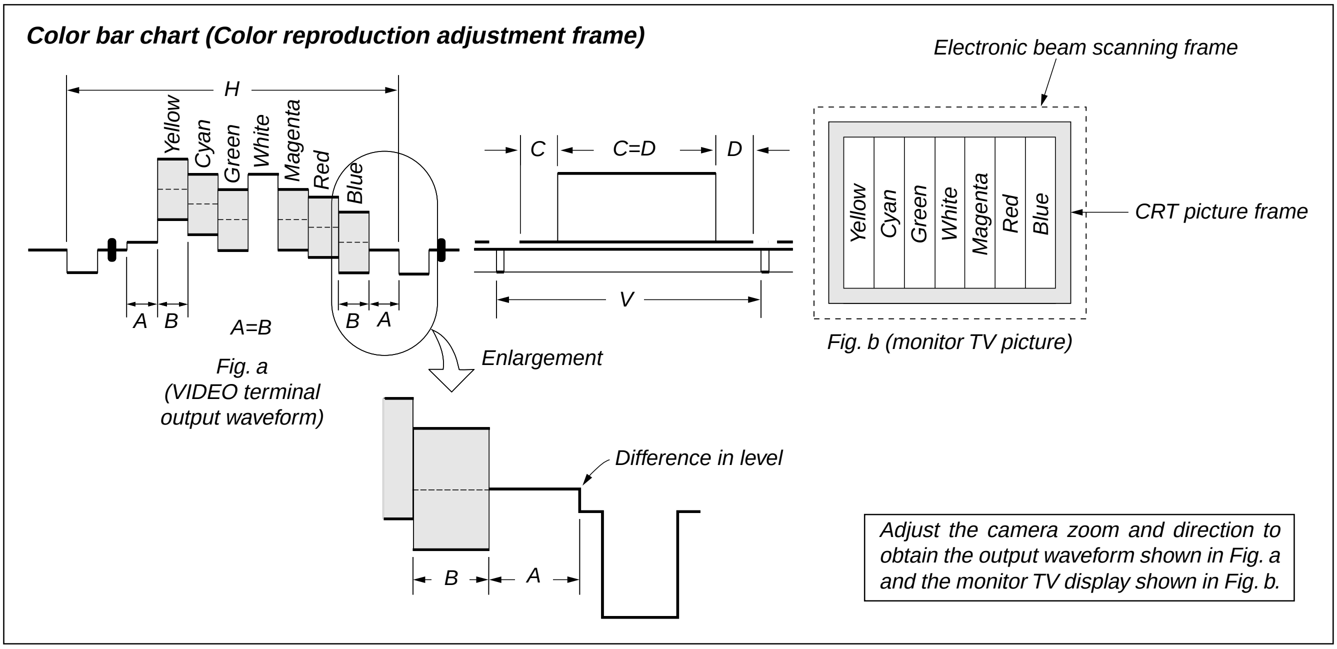
Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1.	POWER switch (MA-374/375 board)	CAMERA
2.	NIGHT SHOT switch (Lens block)	OFF
3.	VIDEO LIGHT switch (MA-374/375 board) (Note1)	OFF
4.	DEMO MODE (Menu display)	OFF
5.	DIGITAL ZOOM (Menu display)	OFF
6.	STEADY SHOT (Menu display) (Note2)	OFF
7.	DISPLAY (Menu display) (Note3)	V-OUT/LCD
8.	DISPLAY (CF-66/67 board) (Note3)	ON
9.	FOCUS switch (MR-8500 block)	MANUAL
10.	PROGRAM AE (CF-66/67 board)	Auto
11.	BACK LIGHT (CF-66/67 board)	OFF
12.	PICTURE EFFECT (CF-66/67 board)	OFF
13.	DIGITAL EFFECT (CF-66/67 board) (Note4)	OFF
14.	16 : 9 WIDE (MENU display)	OFF

Note1: VIDEO LIGHT model (CCD-TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P) only.
Note2: STEADY SHOT model (CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P) only.
Note3: TRV model (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) only.
Note4: DIGITAL EFFECT model (CCD-TRV87/TRV87P) only.

2. Order of Adjustments

Basically carry out adjustments in the order given.



Color bar chart (Color reproduction adjustment frame)

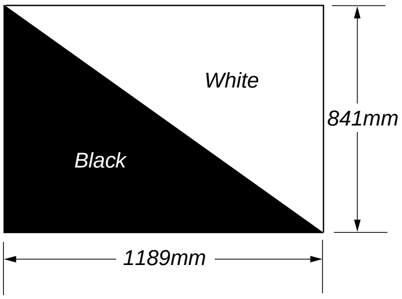
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
Fig. a
(VIDEO terminal
output waveform)
Enlargement
Difference in level
B
A
C
C=D
D
V
Electronic beam scanning frame
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame
Fig. b (monitor TV picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the monitor TV display shown in Fig. b.

Fig.5-1-5.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-5. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
Make the chart shown in Fig. 5-1-6 using A0 size (1189mm × 841mm) black and white vellum paper.



White
Black
841mm
1189mm

Fig. 5-1-6.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA

1. Initializing the D, E, F, 7 Page Data

Note 1: If "Initializing the D, E, F, 7 Page Data" is performed, all data of the D page, E page, F page and 7 page will be initialized. (It is impossible to initialize a single page.)

Note 2: If the D, E, F, 7 page data has been initialized, "Modification of D, E, F, 7 Page Data" and all adjustments need to be performed again.

Adjusting page	D
Adjusting Address	00 to 85
Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to FF

Initializing Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 00, and set data: 55.
3) Select page: 6, address: 01, set data: 55, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 02, and check that the data is 01.
5) Select page: 2, address: 00, and set data: 29.
6) Select page: 2, address: 01, set data: 29, and press the PAUSE button.
7) Perform "Modification of D, E, F, 7 Page Data".

2. Modification of D, E, F, 7 Page Data

If the D, E, F, 7 page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D, E, F, 7 Page data

1) Select page: 2, address: 00, and set data: 29.
2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

Note: If the following symptoms occur after completing of the "Modification of D, E, F, 7 page data", check that the data of the "Fixed data-2" addresses of D page are same as those of the same model of the same destination.
1) The battery end mark on the LCD or viewfinder screen is flashing.
2) The power is shut off so that unit cannot operate.

3. D Page Table

Note1: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11		Fixed data-1 (Initialized data)
12		
13		Fixed data-2 (Modified data. Copy the data built in the same model.)
14		
15		
16		Fixed data-1
17		Fixed data-2 (Modified data. Copy the data built in the same model.)
18		
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		Fixed data-1
22		Fixed data-2
23		Fixed data-1 (Initialized data)
24		
25		
26		
27		
28		Fixed data-2 (Modified data. Copy the data built in the same model.)
29		
2A		Fixed data-1 (Initialized data)
2B		
2C		
2D		
2E		
2F		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
3A		
3B		
3C		
3D		
3E		
3F		

D page

Address	Initial value	Remark
40		Fixed data-2 (Modified data. Copy the data built in the same model.)
41		
42		Fixed data-1
43		Fixed data-2 (Modified data. Copy the data built in the same model.)
44		
45		
46		
47		
48		
49		
4A		Fixed data-1 (Initialized data)
4B		
4C		
4D		Fixed data-2
4E		
4F		Fixed data-1
50		Fixed data-2 (Modified data. Copy the data built in the same model.)
51		
52		
53		
54		
55		
56		
57		Fixed data-1
58		Fixed data-2 (Modified data. Copy the data built in the same model.)
59		
5A		
5B		
5C		
5D		Fixed data-1 (Initialized data)
5E		
5F		
60		
61		
62		
63		
64		
65		Fixed data-2
66		Fixed data-1
67		Fixed data-2 (Modified data. Copy the data built in the same model.)
68		
69		
6A		Fixed data-1 (Initialized data)
6B		
6C		
6D		
6E		
6F		
70		
71		
72		
73		
74		
75		
76		

Address	Initial value	Remark
77		Fixed data-1 (Initialized data)
78		
79		
7A		
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		Fixed data-2
85		Fixed data-1

Table. 5-1-2

4. F Page table

Note1: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00 to 0F		
10	00	Emergency memory address
11	00	
12	00	
13	00	
14	00	
15	00	
16	00	
17	00	
18	00	
19	00	
1A	00	
1B	00	
1C		Fixed data-2 (Modified data. Copy the data built in the same model.)
1D		
1E		Fixed data-1
1F		Fixed data-2
20		Fixed data-1 (Initialized data)
21		
22		
23		
24		Fixed data-2
25		Fixed data-1
26		Fixed data-2
27		Fixed data-1 (Initialized data)
28		
29		
2A		
2B		
2C		
2D		
2E		
2F		
30		
31		
32		
33		Fixed data-2
34		Fixed data-1 (Initialized data)
35		
36		
37		
38	68	HALL adj.
39	80	
3A	8D	
3B		Fixed data-2
3C	80	AWB & LV standard data input
3D	7A	
3E	2B	
3F	80	
40	65	
41	80	
42	8D	Auto white balance adj.
43	87	
44		Fixed data-1 (Initialized data)
45		
46		
47	33	Color reproduction adj.
48		Fixed data-1
49	34	Color reproduction adj.
4A		Fixed data-1 (Initialized data)
4B		
4C		
4D	8C	28MHz origin osc. Adj.
4E	28	Flange back adj.
4F	07	
50	3A	
51	4A	
52	12	
53	0B	
54	54	
55	00	
56	19	
57	00	
58	37	
59	00	
5A	00	
5B	04	
5C	00	
5D	00	
5E		Fixed data-2
5F		
60		Fixed data-1 (Initialized data)
61		
62	0A	Switching position adj.
63	00	
64	83	CAP FG offset adj.
65	40	AFC f_0 adj.
66	77	Filter f_0 adj.
67	6B	Y OUT level adj.
68	9A	C OUT level adj.
69		Fixed data-2
6A	B4	REC Y current adj.
6B	B4	
6C		Fixed data-1
6D		Fixed data-2 (Modified data. Copy the data built in the same model.)
6E		
6F		
70		
71	A0	REC C/AFM current adj.
72		Fixed data-1
73		Fixed data-2 (Modified data. Copy the data built in the same model.)
74		
75		
76		
77		
78		
79		

F page

Address	Initial value	Remark
7A		Fixed data-2
7B	A6	1.5MHz deviation adj.
7C	94	1.7MHz deviation adj.
7D	80	BPF f_0 adj.
7E	41	IR video deviation Adj.
7F	33	IR audio deviation Adj.
80	C7	IR video carrier freq. Adj.
81		Fixed data-2
82		Fixed data-1 (Initialized data)
83		
84		
85		
86		
87		
88		
89		
8A		
8B		Fixed data-2
8C		Fixed data-1 (Initialized data)
8D		
8E		Fixed data-2 (Modified data. Copy the data built in the same model.)
8F		
90		Fixed data-1 (Initialized data)
91		
92		
93		Fixed data-2 (Modified data. Copy the data built in the same model.)
94		
95		
96		Fixed data-1 (Initialized data)
97		
98		
99		
9A		
9B		
9C		
9D		
9E		Fixed data-2 (Modified data. Copy the data built in the same model.)
9F		
A0		
A1		Fixed data-1 (Initialized data)
A2		
A3		
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		
AC		
AD		
AE		
AF		
B0		

Address	Initial value	Remark
B1		Fixed data-1 (Initialized data)
B2		
B3		
B4		
B5		
B6		
B7		
B8		Fixed data-2 (Modified data. Copy the data built in the same model.)
B9		
BA		
BB		
BC		
BD		Fixed data-1 (Initialized data)
BE		
BF		
C0		
C1		
C2		
C3		
C4		
C5		
C6		
C7		
C8		
C9		
CA		
CB		
CC		
CD		Fixed data-2
CE		Fixed data-1 (Initialized data)
CF		
D0		
D1		
D2		
D3		
D4		
D5		
D6		
D7	FD	Color reproduction adj.
D8	F4	
D9	0F	
DA	31	
DB		Fixed data-2
DC		Fixed data-1 (Initialized data)
DD		
DE		Fixed data-2
DF		
E0		Fixed data-1
E1		Fixed data-2
E2		Fixed data-1 (Initialized data)
E3		
E4		
E5		
E6		
E7		
E8		

Address	Initial value	Remark
E9		Fixed data-1 (Initialized data)
EA		
EB		
EC		
ED		
EE		
EF		
F0		
F1		
F2		
F3		Fixed data-2 (Modified data. Copy the data built in the same model.)
F4		
F5		
F6		
F7		Fixed data-1 (Initialized data)
F8		
F9		
FA		
FB		
FC		
FD		
FE		
FF		

Table. 5-1-3

5. E Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00		Fixed data-1 (Initialized data)
01		
02		Fixed data-2 (Modified data. Copy the data built in the same model.)
03		
04		
05		
06		
07		Fixed data-1
08		Fixed data-2
09	41	
0A		Fixed data-1 (Initialized data)
0B		
0C		
0D		
0E		
0F		Fixed data-2 (Modified data. Copy the data built in the same model.)
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
1A		Fixed data-1 (Initialized data)
1B		
1C		
1D		
1E		
1F		
20		
21		
22		
23		
24		
25		
26		
27		
28		Fixed data-2
29		Fixed data-1 (Initialized data)
2A		
2B		
2C		
2D		
2E		
2F		
30		Fixed data-2
31		Fixed data-1 (Initialized data)
32		

E page

Address	Initial value	Remark
33		Fixed data-1
34		Fixed data-2
35		Fixed data-1
36		Fixed data-2
37		Fixed data-1
38		Fixed data-2 (Modified data. Copy the data built in the same model.)
39		
3A		Fixed data-1
3B		Fixed data-2 (Modified data. Copy the data built in the same model.)
3C		
3D		
3E		Fixed data-1 (Initialized data)
3F		
40		
41		Fixed data-2
42		Fixed data-1 (Initialized data)
43		
44		
45		
46		
47		
48		
49		
4A		
4B		
4C		
4D		
4E		
4F		
50		
51		Fixed data-2
52		Fixed data-1 (Initialized data)
53		
54		
55		
56		
57		
58		
59		Fixed data-2
5A		Fixed data-1 (Initialized data)
5B		
5C		
5D		
5E		
5F		
60		
61		
62		
63		
64		
65		
66		
67		
68		
69		

Address	Initial value	Remark
6A		Fixed data-1 (Initialized data)
6B		
6C		
6D		
6E		
6F		
70		
71		
72		Fixed data-2
73		Fixed data-1 (Initialized data)
74		
75		
76		
77		
78		
79		
7A		
7B		
7C		Fixed data-2 (Modified data. Copy the data built in the same model.)
7D		
7E		
7F		Fixed data-1
80		Fixed data-2
81		Fixed data-1 (Initialized data)
82		
83		
84		
85		
86		
87		
88		
89		
8A		
8B		
8C		Fixed data-2 (Modified data. Copy the data built in the same model.)
8D		
8E		
8F		Fixed data-1
90		Fixed data-2
91		Fixed data-1 (Initialized data)
92		
93		Fixed data-2
94		Fixed data-1 (Initialized data)
95		
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		
9F		
A0		
A1		

Address	Initial value	Remark
A2		Fixed data-1 (Initialized data)
A3		
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		
AC	08	
AD	8D	
AE		
AF		
B0		
B1		
B2		
B3		
B4		
B5		Fixed data-2
B6		Fixed data-1
B7		Fixed data-2
B8		Fixed data-1
B9		Fixed data-2
BA		Fixed data-1
BB		Fixed data-2
BC		Fixed data-1 (Initialized data)
BD		
BE		Fixed data-2 (Modified data. Copy the data built in the same model.)
BF		
C0		
C1		
C2		
C3		
C4		
C5		
C6		
C7		
C8		Fixed data-1
C9		Fixed data-2 (Modified data. Copy the data built in the same model.)
CA		
CB		Fixed data-1
CC		Fixed data-2 (Modified data. Copy the data built in the same model.)
CD		
CE		Fixed data-1 (Initialized data)
CF		
D0		Fixed data-2 (Modified data. Copy the data built in the same model.)
D1		
D2		Fixed data-1
D3		Fixed data-2
D4		
D5		Fixed data-1
D6		Fixed data-2
D7		Fixed data-2 (Modified data. Copy the data built in the same model.)
D8		Fixed data-1
D9		Fixed data-2
DA		
DB	FF	
DC	FF	
DD	A9	
DE		Fixed data-1
DF		Fixed data-2 (Modified data. Copy the data built in the same model.)
E0		
E1		Fixed data-1 (Initialized data)
E2		
E3		Fixed data-2 (Modified data. Copy the data built in the same model.)
E4		
E5		Fixed data-1 (Initialized data)
E6		
E7		
E8		
E9		
EA		
EB		
EC		
ED		
EE		
EF	99	
F0		Fixed data-1
F1	02	
F2		Fixed data-1
F3	CA	
F4		Fixed data-1
F5	E5	
F6	CC	
F7	A9	
F8	E5	
F9	A9	
FA	A9	
FB		Fixed data-1 (Initialized data)
FC		
FD		
FE		
FF		

Table. 5-1-4

6. 7 Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00		Fixed data-1 (Initialized data)
01		
02		
03		Fixed data-2
04		Fixed data-1
05		Fixed data-2 (Modified data. Copy the data built in the same model.)
06		
07		
08		
09		Fixed data-1
0A		Fixed data-2 (Modified data. Copy the data built in the same model.)
0B		
0C		
0D		Fixed data-1 (Initialized data)
0E		
0F		
10		Fixed data-2
11		
12		Fixed data-1 (Initialized data)
13		
14		Fixed data-2
15		Fixed data-1 (Initialized data)
16		
17		
18		
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		
22		
23		
24		
25		
26		
27		
28		Fixed data-2 (Modified data. Copy the data built in the same model.)
29		
2A		
2B		Fixed data-1
2C		Fixed data-2 (Modified data. Copy the data built in the same model.)
2D		
2E		
2F		Fixed data-1 (Initialized data)
30		
31		
32		
33		
34		Fixed data-1 (Initialized data)
35		
36		
37		
38		Fixed data-2
39		Fixed data-1 (Initialized data)
3A		
3B		
3C		
3D		
3E		
3F		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
4A		
4B		
4C		
4D		
4E		
4F		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
5A		
5B		
5C		
5D		
5E		
5F		Fixed data-2
60		Fixed data-1 (Initialized data)
61		
62		
63		Fixed data-2
64		Fixed data-1 (Initialized data)
65		
66		
67		
68		
69		
6A		
6B		Fixed data-2

Address	Initial value	Remark
6C		Fixed data-2 (Modified data. Copy the data built in the same model.)
6D		
6E		
6F		Fixed data-1 (Initialized data)
70		
71		
72		
73		
74		
75		
76		
77		Fixed data-2 (Modified data. Copy the data built in the same model.)
78		
79	11	
7A		Fixed data-2
7B		Fixed data-1 (Initialized data)
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		
85		Fixed data-2
86		Fixed data-1 (Initialized data)
87		
88		
89		
8A		
8B		
8C		
8D		
8E		
8F		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		
9F		
A0		
A1		
A2		

Address	Initial value	Remark
A3		Fixed data-1 (Initialized data)
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		Fixed data-2
AC		Fixed data-1 (Initialized data)
AD		
AE		
AF		
B0		
B1		
B2		
B3		
B4		
B5		Fixed data-2 (Modified data. Copy the data built in the same model.)
B6		
B7		Fixed data-1
B8		Fixed data-2 (Modified data. Copy the data built in the same model.)
B9		
BA		
BB		
BC		Fixed data-1
BD		Fixed data-2 (Modified data. Copy the data built in the same model.)
BE		
BF		
C0		
C1		
C2		
C3		
C4		
C5		Fixed data-1
C6		Fixed data-2 (Modified data. Copy the data built in the same model.)
C7		
C8		
C9		
CA		Fixed data-1
CB		
CC		Fixed data-2 (Modified data. Copy the data built in the same model.)
CD		
CE		
CF		
D0		
D1		Fixed data-1 (Initialized data)
D2		
D3		
D4		
D5	6D	VCO adj.(EVF)
D6		Fixed data-2
D7		Fixed data-1
D8	93	RGB AMP adj.(EVF)
D9		Fixed data-1

7 page

Address	Initial value	Remark
DA	8D	White balance adj.(EVF)
DB	83	
DC	1D	Contrast adj.(EVF)
DD		Fixed data-1 (Initialized data)
DE		
DF	CA	Back light consumption current adj. (EVF)
E0	0A	
E1	13	
E2		Fixed data-1 (Initialized data)
E3		
E4		
E5	6E	VCO adj.(LCD)
E6		Fixed data-1
E7	8E	V-COM adj.(LCD)
E8	29	RGB AMP adj.(LCD)
E9		Fixed data-1
EA	C3	COM AMP adj.(LCD)
EB	60	White balance adj.(LCD)
EC	65	
ED	50	Contrast adj.(LCD)
EE		Fixed data-1 (Initialized data)
EF		
F0		Fixed data-2
F1		Fixed data-1 (Initialized data)
F2		
F3		Fixed data-2
F4		Fixed data-1 (Initialized data)
F5		
F6		
F7		
F8		
F9		
FA		
FB		
FC		
FD		
FE		
FF		

Table. 5-1-5

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, Check that the specified value of “28MHz Origin Oscillation Adjustment”, “Y OUT level Adjustment” and “C OUT level Adjustment” of “VIDEO SYSTEM ADJUSTMENT” are satisfied.

1. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	38, 39, 3A
Specified Value	When the data of page: 6, address: 01 is “01”: 86 to 8A (Note2) When the data of page: 6, address: 01 is “03”: 15 to 19 (Note2)

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX
└── Display data

Note2: The PAUSE button of the Adjustment remote commander must be pressed.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 94, and set data: 88.
3) Select page: 6, address: 95, and set data: 17.
4) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjustment remote commander. (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 38 to 3A.)
5) Select page: 6, address: 02, and check that the data is “01”.
6) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

1) Select page: 0, address: 03, and set data: 03.
2) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
3) Select page: 1, and check that the display data (Note1) satisfies the specified value.
4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
5) Select page: 1, and check that the display data (Note1) satisfies the specified value.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 6, address: 94, and set data: 00.
3) Select page: 6, address: 95, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.
5) Select page: 0, address: 03, and set data: 00.

2. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note1: Dark Siemens star chart.
Note2: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Preparations before adjustments:

The minipattern box is installed as shown in the following figure.
Note: The attachment lenses are not used.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

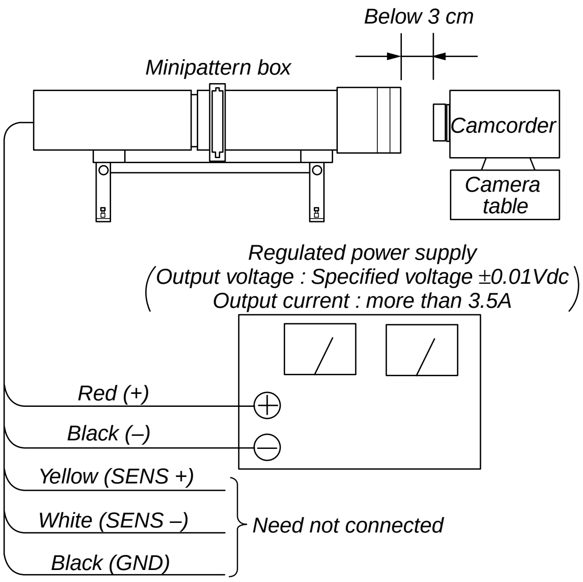


Fig. 5-1-7.

Adjusting method:

1) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
2) Make the height of the minipattern box and the camcorder equal.
3) Check that the output voltage of the regulated power supply is the specified voltage.
4) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.
5) Select page: 0, address: 01, and set data: 01.
6) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

7) Select page: 6, address: 02, and check that the data is “00”.
8) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
9) Select page: 6, address: 01, set data: 27, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
10) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Check”.

3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

4) Select page: 6, address: 02, and check that the data is “00”.
5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 01, set data: 15, and press the PAUSE button.
   (The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
7) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Adjustment (2)”.

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 6, address: 02, and check that the data is “00”.
4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
5) Place a ND filter on the lens so that the optimum image is obtain.
6) Select page: 6, address: 01, set data: 29, and press the PAUSE button.
   (The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
7) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Check”.

4. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Switch setting:

1) NIGHT SHOT .... OFF
2) VIDEO LIGHT .... OFF

Checking method:

1) Place the Siemens star 2.0m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Select page: 6, address: 40, and set data: 02.
4) Select page: 6, address: 41, and set data: 01.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note).
8) Select page: 6, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Note: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.
1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
Odd: Focused
Even: Unfocused

Processing after Completing Adjustments

1) Select page: 6, address: 21, and set data: 00.
2) Select page: 6, address: 40, and set data: 00.
3) Select page: 6, address: 41, and set data: 00.
4) Select page: 0, address: 03, and set data: 00.

5. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

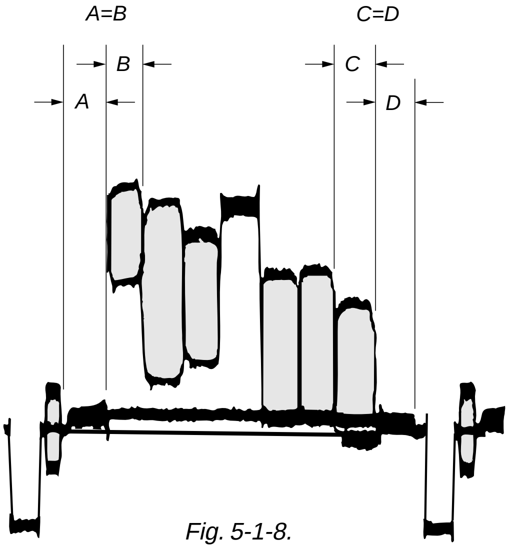


Fig. 5-1-8.

2. Vertical period

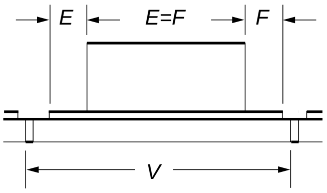


Fig. 5-1-9.

Check on the monitor TV (Underscanned mode)

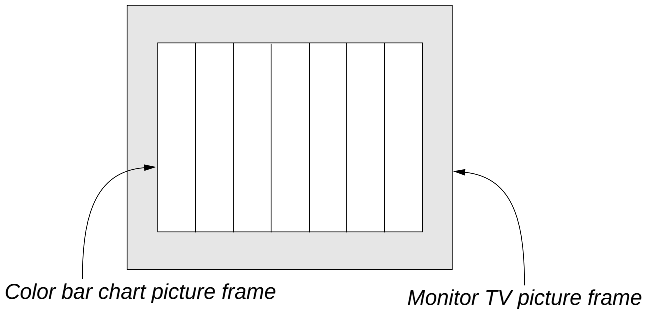


Fig. 5-1-10.

6. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	47, 49, D7, D8
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: 760H model:
CCD-TRV87/TRV87P
510H TYPE P model:
CCD-TRV57/TRV57P/TRV67
510H TYPE S model:
CCD-TR317/TR517/TRV17/TRV37/TRV47

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 2B, set data: 17, and press the PAUSE button.
3) Select page: F, address: 8B, and note down the data.
4) Input the following data to page: F, address: 8B.

	Data
760H model	26
510H TYPE P model	29
510H TYPE S model	29

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
6) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
7) Select page: F, address: D9, set data: 0F, and press the PAUSE button.
8) Select page: F, address: DA, set data: 31, and press the PAUSE button.
9) Change the data of page: F, address: 47, 49, D7 and D8, and settle each color luminance point in each color reproduction frame.

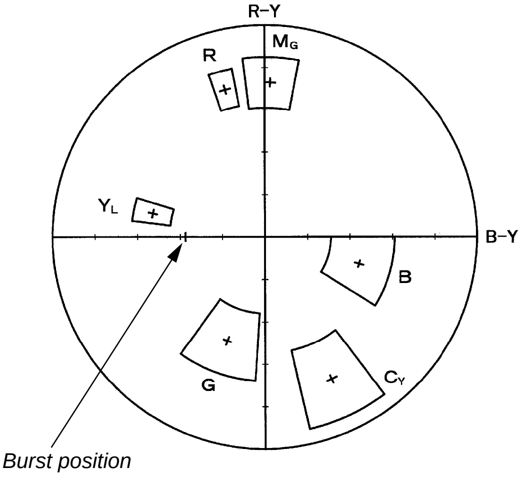
   Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.

10) Select page: F, address: 8B, input the data noted down at step 3), and press the PAUSE button.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.

For 760H model and 510H TYPE S model



For 510H TYPE P model

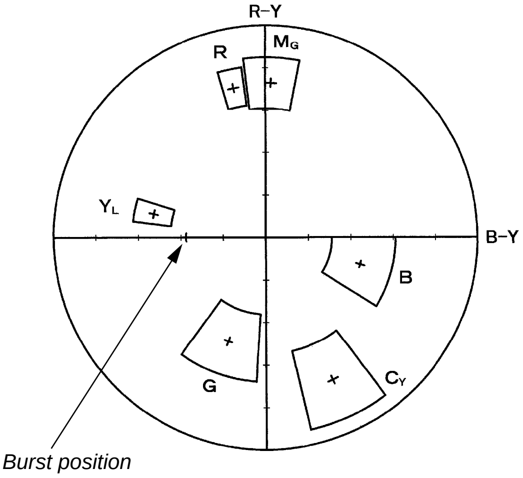


Fig. 5-1-11.

7. Auto White Balance & LV Standard Data Input

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3C to 41

Note1: This adjustment should be carried out upon completion of “6. Color Reproduction Adjustment”.

Note2: Check that the data of page: 6, address: 02 is “00”. If not, turn off the power and turn on again.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 01, set data: 0D, and press the PAUSE button.
   (When the standard data is take in, the data will be automatically input to page: F, address: 3C to 41.)
4) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform “Auto White Balance Adjustment”.

8. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	42, 43
Specified Value	760H model: R ratio: 2BC0 to 2C40 B ratio: 6060 to 6120 510H TYPE P model: R ratio: 2A40 to 2AC0 B ratio: 5E20 to 5EE0 510H TYPE S model: R ratio: 2B60 to 2BE0 B ratio: 5EA0 to 5F60

Note1: Perform "Auto White Balance & LV Standard Data Input" before this adjustment.

Note2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
Display data

Note3: 760H model:
CCD-TRV87/TRV87P
510H TYPE P model:
CCD-TRV57/TRV57P/TRV67
510H TYPE S model:
CCD-TR317/TR517/TRV17/TRV37/TRV47

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: B8 to BB, and note down the data of each address.
4) Input the following data to page: F, addresses: B8 to BB.

Address		B8	B9	BA	BB
Data	760H model	2C	00	60	C0
	510H TYPE P model	2A	80	5E	80
	510H TYPE S model	2B	A0	5F	00

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

5) Select page: 6, address: 01, set data: A7, and press the PAUSE button.
6) Select page: 6, address: 01, set data: A5, and press the PAUSE button.
(The auto white balance adjustment is performed and the adjustment data is stored in page: F, address: 42 and 43.)
7) Select page: 6, address: 02, and check that the data is "01".
8) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
9) Select page: 0, address: 03, and set data: 04.
10) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
11) Select page: 0, address: 03, and set data: 05.
12) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.
13) Select page: F, address: B8 to BB, and input the data noted down at step 3).
Note: After setting each data, be sure to press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 0, address: 03, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

9. White Balance Check

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-12. A to C

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjustment remote commander.
3) Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. (A).
4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
5) Select page: 6, address: 01, set data: 23, and press the PAUSE button.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-12. (B).
8) Remove the C14 filter, and place the ND filter 1.5 (1.0 +0.4+0.1) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
10) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-12. (C).

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.

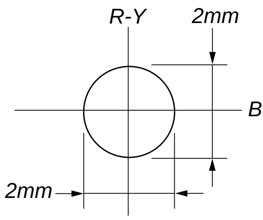


Fig. 5-1-12. (A)

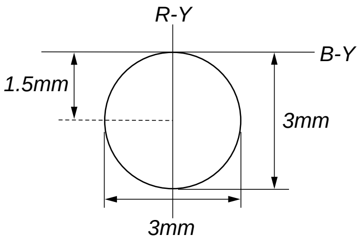


Fig. 5-1-12. (B)

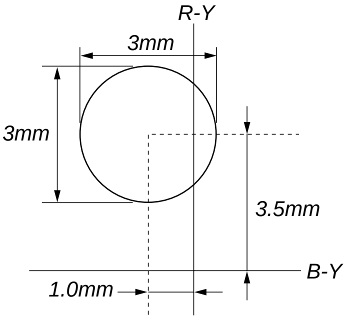


Fig. 5-1-12. (C)

10. Steady Shot Check (CCD-TRV57/TRV57P/TRV67/TRV87/TRV87P)

Precautions on the Angular Velocity Sensor Replacement

There are two types of repair parts.

Type A ENC03JA
Type B ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, check the steady shot operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Steady Shot Check

Check the output of the angular velocity sensor.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note)
Measuring Instrument	Adjustment remote commander
Specified Value	PITCH data : 3100 to 4700 YAW data : 3100 to 4700

Note: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
Display data

Switch setting:

1) ZOOM .... TELE end
2) STEADY SHOT (Menu display) .... ON

Checking method:

1) Select page: 0, address: 03, and set data: 11.
2) Select page: 1, and check that the PITCH data satisfies the specified value.
3) Select page: 0, address: 03, and set data: 12.
4) Select page: 1, and check that the YAW data satisfies the specified value.

Processing after Completing Adjustments

1) Select page: 0, address: 03, and set data: 00.
2) Check that the steady shot operations have been performed normally.

1-4. COLOR ELECTRONIC VIEWFINDER SYSTEM ADJUSTMENT (CCD-TR517)

Note 1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note 2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

[Adjusting connector]

Most of the measuring points for adjusting the viewfinder system are concentrated in CN982 of the VC-234 board.

Connect the Measuring Instruments via the CPC-7 jig (J-6082-382-A).

The following table shows the Pin No. and signal name of CN982.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

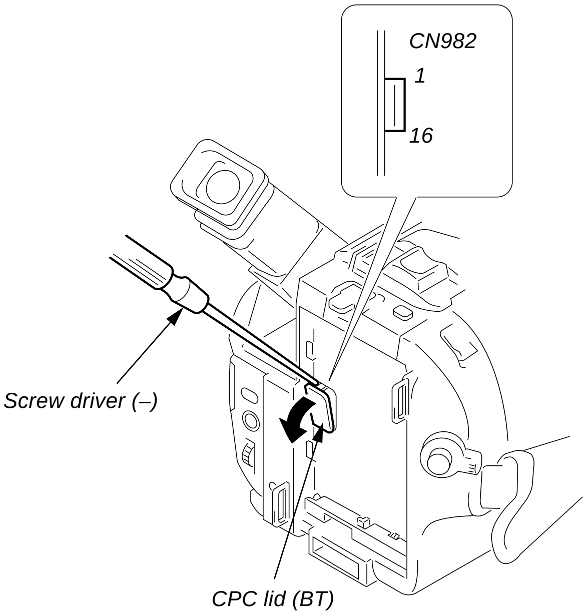


Fig. 5-1-13.

1. EVF Initial Data Input

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	A5 to A7, AB, B5 to C3, D5 to DC, DE to E2

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
A5	E3	Fixed data
A6	E3	Fixed data
A7	E3	Fixed data
AB	F7	Fixed data
B5	88	Fixed data
B6	4C	Fixed data
B7	00	Fixed data
B8	A0	Fixed data
B9	90	Fixed data
BA	64	Fixed data
BB	24	Fixed data
BC	00	Fixed data
BD	80	Fixed data
BE	05	Fixed data
BF	C9	Fixed data
C0	25	Fixed data
C1	00	Fixed data
C2	08	Fixed data
C3	33	Fixed data
D5	6D	VCO adj.
D6	63	Fixed data
D7	A7	Fixed data
D8	93	RGB AMP adj.
D9	0F	Fixed data
DA	8D	White balance adj.
DB	83	White balance adj.
DC	1D	Contrast adj.
DE	90	Fixed data
DF	CA	Backlight consumption current adj.
E0	0A	Backlight consumption current adj.
E1	13	Backlight consumption current adj.
E2	1F	Fixed data

2. VCO Adjustment (VF-141 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑮ of CN982 (VCO) on VC-234 board
Measuring Instrument	Frequency counter
Adjustment Page	7
Adjustment Address	D5
Specified Value	f = 15734 ± 30Hz

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: D5, change the data and set the VCO frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

3. RGB AMP Adjustment (VC-141 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑯ of CN982 (EVF VG) on VC-234 board
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	D8
Specified Value	A = 7.20 ± 0.1V

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: DE, set data: 10, and press the PAUSE button of the adjustment remote commander.
3) Select page: 7, address: D8, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
4) Press the PAUSE button.
5) Select page: 7, address: DE, set data: 90, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

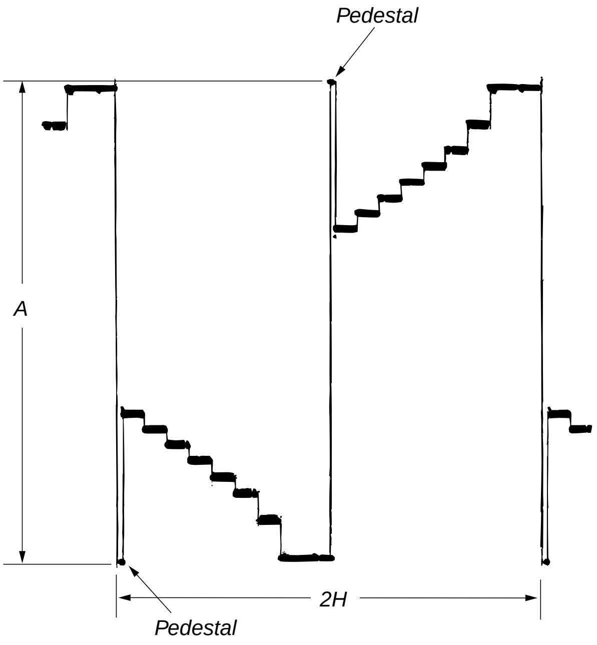


Fig. 5-1-14.

4. Contrast Adjustment (VF-141 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑯ of CN982 (EVF VG) on VC-234 board
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	DC
Specified Value	A=2.20 ± 0.1V

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: DE, set data: 10, and press the PAUSE button of the adjustment remote commander.
3) Select page: 7, address: DC, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
   (The data of address: DC should be "00" to "7F".)
4) Press the PAUSE button.
5) Select page: 7, address: DE, set data: 90, and press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

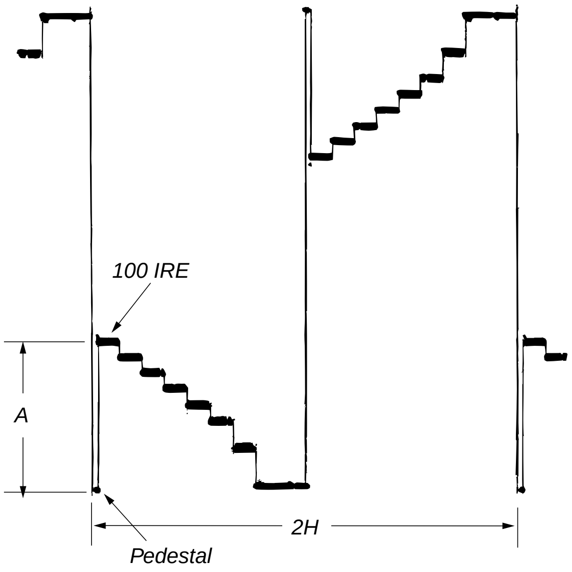


Fig. 5-1-15.

5. Backlight Consumption Current Adjustment (VF-141 board)

Set the backlight luminance and color temperature.
If deviated, the image may become dark or bright.

Mode	Camera
Subject	Arbitrary
Measurement Point	+ Probe: Pin ⑭ of CN982 (EVF BL 4.75V) on VC-234 board – Probe: Pin ⑬ of CN982 (EVF BL) on VC-234 board
Measuring Instrument	Digital voltmeter
Adjustment Page	7
Adjustment Address	DF, E0, E1
Specified Value	BRIGHT mode : A=15.5 ± 1.0mVdc NORMAL mode : A=9.5 ± 1.0mVdc

Note1: Perform the adjustment in the following order.
Note2: Use the AC power adaptor.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: DF to E1, and set data to the initial value.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	DF	E0	E1
Data	CA	0A	13

3) Select page: 7, address: E0, change the data and set the voltage difference (A) between Pin ⑭ of CN982 (EVF BL 4.75V) and Pin ⑬ of CN982 (EVF BL) to the specified value of BRIGHT mode.
   (The data of address: E0 should be "00" to "3F".)
4) Press the PAUSE button of the adjustment remote commander.
5) Read the data of page: 7, address: E0, and take it as D_{E0}.
6) Obtain D_{DF} corresponding to D_{E0} from the following table.

D_{E0}	D_{DF}
00 to 0F	C0 to CF (Note)
10 to 1F	D0 to DF (Note)
20 to 2F	E0 to EF (Note)
30 to 3F	F0 to FF (Note)

Note: The lower digit of D_{DF} is equal to it of D_{E0}.
Example: If D_{E0} is "1B".
D_{DF} = DB

7) Select page: 7, address: DF, set the data: D_{DF}, and press the PAUSE button.
8) Select page: 7, address: E1, change the data and set the voltage difference (A) between Pin ⑭ and Pin ⑬ to the specified value of NORMAL mode..
   (The data of address: E1 should be "00" to "1F".)
9) Press the PAUSE button.
10) Select page: 0, address: 01, and set data: 00.

6. White Balance Adjustment (VF-141 board)

Correct the white balance.

If deviated, the reproduction of the EVF screen may degenerate.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on EVF screen
Measuring Instrument	
Adjustment Page	7
Adjustment Address	DA, DB
Specified Value	The EVF screen should not be colored.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: DA and DB, set the data to the initial value.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	DA	DB
Data	8D	83

3) Check that the EVF screen is not colored. If colored, change the data of page: 7, address: DA and DB so that the EVF screen is not colored.

   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
4) Select page: 0, address: 01, and set data: 00.

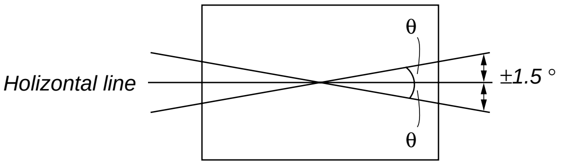
1-5. MONOCHROME ELECTRONIC VIEWFINEDER SYSTEM ADJUSTMENT (CCD-TR317/TRV17/TRV37/TRV47/TRV57/ TRV57P/TRV67/TRV87/TRV87P)

1-5-1. Horizontal Slant Check

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) (VF-129 board) so that the CRT can be seen easily and clearly.
2) Check that the difference between the horizontal line and the tilt of black mask satisfies the specified value.


θ
Holizontal line
±1.5 °
θ

Specified value : The image should be within ± 1.5 ° of the holizontal line.

Fig. 5-1-16.

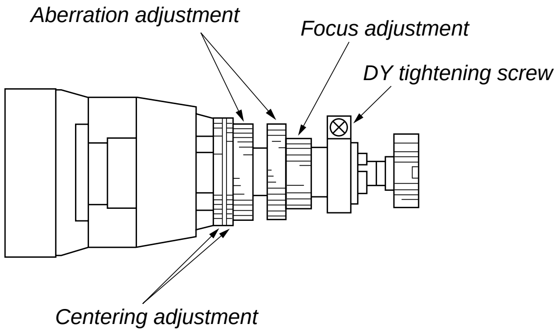
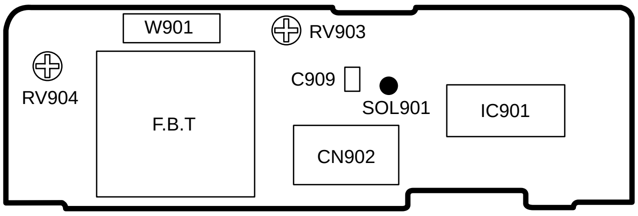

Aberration adjustment
Focus adjustment
DY tightening screw
Centering adjustment

Fig. 5-1-17.

VF-129 BOARD


W901
RV903
RV904
C909
SOL901
F.B.T
IC901
CN902

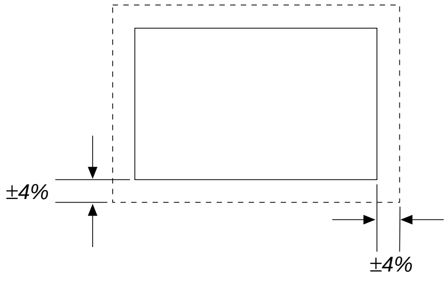
1-5-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, light, top, and bottom sides of the display are uniform. (Refer to Fig. 5-1-17.)

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value : ±4%

Fig. 5-1-18.

1-5-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 5-1-17.)

1-5-4. Aberration Adjustment

Mode	VTR stop
Signal	Dot pattern
Specified Value	b1 ≦ 2 × a1 b2 ≦ 0.8 × a2

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

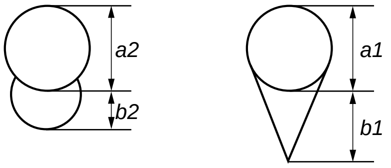


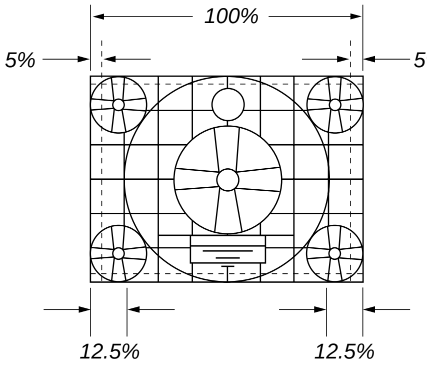
Fig. 5-1-19.

1-5-5. Horizontal Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section
Adjusting Element	C909 (SOL901)
Specified Value	10 ± 6%

Adjusting method:

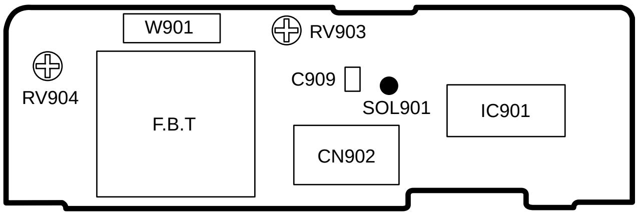
1) Rotate RV903, and adjust the top and bottom side of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to “short” or “open”, so that the horizontal direction over scan becomes 10 ± 6% (Left and right totals).



SOL901	Size H
Open	Small
Short	Big

Fig. 5-1-20.

VF-129 BOARD



1-5-6. Vertical Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section
Adjusting Element	RV903
Specified Value	10 ± 3%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 10 ± 3% (Top and bottom totals).

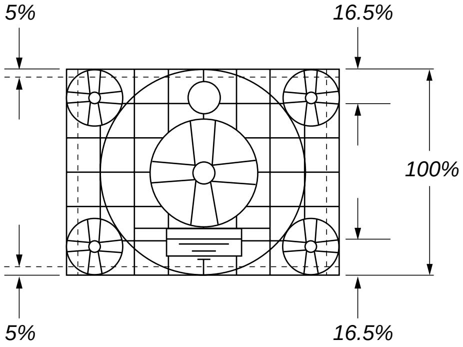


Fig. 5-1-21.

1-5-7. Brightness Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5NSP) Monoscope section
Adjusting Element	RV904

Adjusting method:

1) Rotate RV904, and adjust so that the bright/dark sections of gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section of the gray scale cannot be differentiate.)

1-5-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

"1-5-5. Horizontal Amplitude Adjustment" and "1-5-6. Vertical Amplitude Adjustment" should be both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "1-5-7. Brightness Adjustment" again.
Moreover, check the focus, and if it found to be vague, perform "1-5-3. Focus Adjustment" and "1-5-4. Aberration Adjustment".

1-6. LCD SYSTEM ADJUSTMENT (CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT to the center.
Set the LCD COLOR (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in the following connector.

CN5502 of the PD-117 board

Connect the Measuring Instruments via the multi CPC jig (J-6082-311-A).

The following table shows the Pin No. and signal name of the connector.

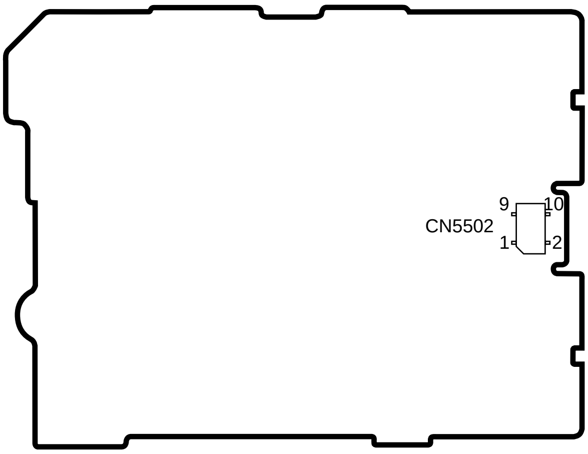
Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PANEL COM
5	VR	6	N.C.
7	C SYNC	8	XHD OUT
9	GND	10	GND

[LCD type check]

By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502, the type of LCD can be discriminated.

Resistor value	LCD type
1kΩ	LCD TYPE S
1.5kΩ	LCD TYPE C

PD-117 board



1. LCD Initial Data Input

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	A8 to AB, C4 to D2, E3 to ED, EF to F3

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
A8	E3	Fixed data
A9	E3	Fixed data
AA	E3	Fixed data
AB	F7	Fixed data
C4	45	Fixed data
C5	00	Fixed data
C6	90	Fixed data
C7	90	Fixed data
C8	66	Fixed data
C9	26	Fixed data
CA	00	Fixed data
CB	80	Fixed data
CC	13	Fixed data
CD	C9	Fixed data
CE	23	Fixed data
CF	1A	Fixed data
D0	08	Fixed data
D1	33	Fixed data
D2	33	Fixed data
E3	78	Fixed data
E4	91	Fixed data
E5	6E	VCO adj.
E6	63	Fixed data
E7	8E	V-COM adj.
E8	29	RGB AMP adj.
E9	00	Fixed data
EA	C3	COM AMP adj.
EB	60	White balance adj.
EC	65	White balance adj.
ED	50	Contrast adj.
EF	10	Fixed data
F0	6B	Fixed data
F1	9F	Fixed data
F2	1F	Fixed data
F3	DA	Fixed data

2. VCO Adjustment (PD-117 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	7
Adjustment Address	E5
Specified Value	f = 15734 ± 30Hz

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E5, change the data and set the XHD OUT frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

3. RGB AMP Adjustment (PD-117 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	E8
Specified Value	LCD TYPE S: A = 3.63 ± 0.05V LCD TYPE C: A = 3.00 ± 0.05V

Note1: Press the DISPLAY button and erase the screen indictors on the LCD screen.

Note2: Refer to “LCD type check” for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E8, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
   (The data of address: E8 should be “00” to “3F”.)
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

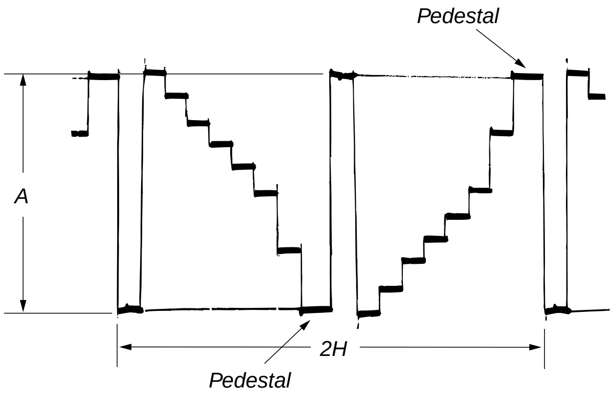


Fig. 5-1-22.

4. Contrast Adjustment (PD-117 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	ED
Specified Value	LCD TYPE S: A = 3.68 ± 0.07V LCD TYPE C: A = 2.84 ± 0.07V

Note: Refer to “LCD type check” for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: ED, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
   (The data of address: ED should be “00” to “7F”.)
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

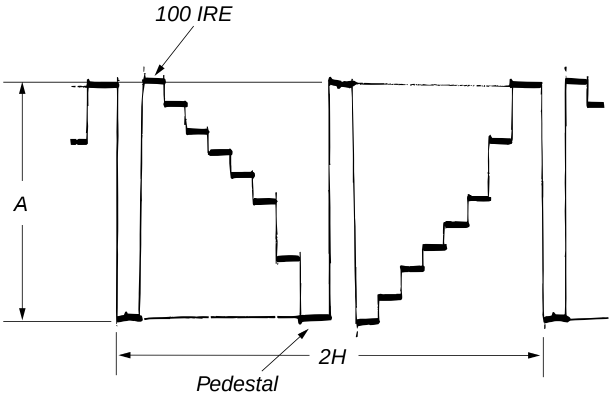


Fig. 5-1-23.

5. COM AMP Adjustment (PD-117 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	EA
Specified Value	LCD TYPE S: A = 6.47 ± 0.05V LCD TYPE C: A = 5.09 ± 0.05V

Note: Refer to “LCD type check” for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: EA, change the data and set the PANEL COM signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

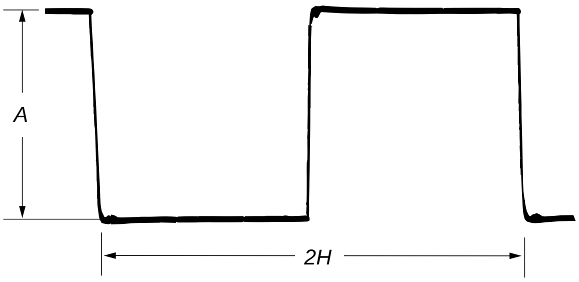


Fig. 5-1-24.

6. V-COM Adjustment (PD-117 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	E7
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: Perform “RGB AMP Adjustment”, “Contrast Adjustment” and “COM AMP Adjustment” before this adjustment.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E7, change the data so that the brightness of the section A and that of the section B is equal.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

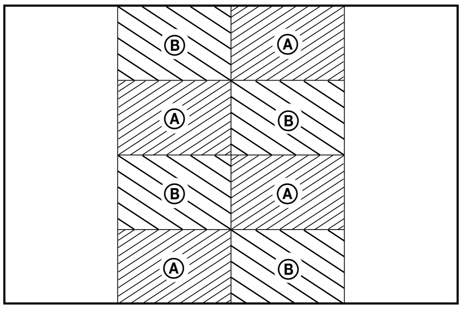


Fig. 5-1-25.

7. White Balance Adjustment (PD-117 board)

Correct the white balance.
If deviated, the LCD screen color cannot be reproduced.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	EB, EC
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: EB and EC, and set the data to the initial value.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	EB	EC
Data	60	65

3) Check that the LCD screen is not colored. If colored, change the data of page: 7, address: EB and EC so that the LCD screen is not colored.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
4) Select page: 0, address: 01, and set data: 00.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “8mm Video Mechanism Adjustment Manual Ⅶ B Mechanism ”.

2-1. OPERATING WITHOUT CASSETTE

1) Refer to “Section 2. DISASSEMBLY” and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: F, address: 22, set data: 81, and press the PAUSE button of the adjustment remote commander.
7) Select page: D, address: 10, set data: 10, and press the PAUSE button of the adjustment remote commander.
8) Disconnect the power supply of the unit.

By carrying out the above procedure, the unit can be operated without loading a cassette.

Be sure to carry out “Processing after Operations” after checking the operations.

Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply On mode or forced camera power supply ON mode are to be used together.

Forced VTR power ON mode 12
Forced camera power ON mode 11

[Procedure after checking operations]

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 22, set data: 88, and press the PAUSE button of the adjustment remote commander.
(Be sure to perform “Processing after operation” after completing adjustments.)
6) Connect the oscilloscope to VC-234 board CN982 via CPC-7 jig (J-6082-382-A).
Channel 1: VC-234 board, CN982 Pin ⑥
External trigger: VC-234 board, CN982 Pin ⑪
7) Playback an alignment tape for tracking. (WR5-1NP)
8) Check that the oscilloscope RF waveform is flat at the entrance and exit.
If not flat, adjust according to the separate volume “8mm Video Mechanical Adjustment Manual Ⅶ B Mechanism ”.
9) Perform “Processing after operations”, after completing adjustment.

CN982 of VC-234 board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-2-1.

[Procedure after operations]

1) Connect the adjustment remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Remove the power supply from the unit.

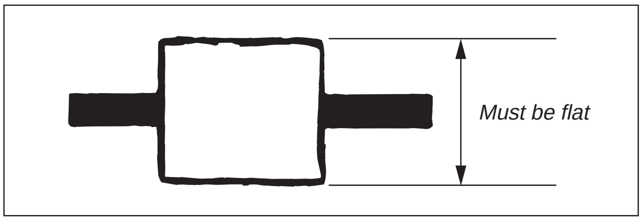


Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    - For tracking adjustment (WR5-1NP)
      Parts code : 8-967-995-02
    - For video frequency characteristics adjustment (WR5-7NE)
      Parts code : 8-967-995-13
    - For checking Standard 8 mode operations
    - For LP (WR5-4NL)
      Parts code : 8-967-995-51
    - For SP (WR5-5NSP)
      Parts code : 8-967-995-42

    Note: The following alignment tapes can also be used.
    WR5-4NSP (8-967-995-41)
    - For checking Hi8 mode operations
    - For LP (WR5-8NLE)
      Parts code : 8-967-995-52
    - For SP (WR5-8NSE)
      Parts code : 8-967-995-43
    - For Checking AFM stereo operations (WR5-9NS)
      Parts code : 8-967-995-23
    - For BPF adjustment (WR5-11NS)
      Parts code : 8-967-995-71
12) Adjustment remote commander (J-6082-053-B)
13) CPC-7 jig (J-6082-382-A)
14) Power code (J-6082-223-A)

    Note: Connect the adjustment remote commander to the LANC jack, and set the HOLD switch to the “ADJ” side.
15) AFM DEV jig (J-6082-312-A)
16) IR receiver jig (J-6082-383-A)

3-1-2. Precautions on Adjusting

Note1: TR model / TRV model
TR model: CCD-TR317/TR517
TRV model: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P

1) The adjustments of this unit are performed in the VTR mode or camera mode.
To set to the VTR mode, set the power switch to "VTR or PLAYER" or set the "Forced VTR Power ON mode" using the adjustment remote commander (Note 2).
To set to the Camera mode, set the power switch to "CAMERA" or set the "Forced Camera Power ON mode" using the adjustment remote commander (Note 3).
After completing adjustments, be sure to exit the "Forced VTR Power ON Mode" or "Forced Camera Power ON Mode". (Note 4)

2) By setting the "Forced VTR Power ON mode" or "Forced Camera Power ON mode", the video section can be operate even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.
 1. VC-234 board CN972 (20P 0.5mm)

3) The cabinet (R) (Camera function switch (CF-66/67 board), LCD block (TRV model only), Viewfinder) need not be connected. But removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to the "Service Mode" for the data on the history use.)
To remove the cabinet (R), disconnect the following connectors.
 1. VC-234 board CN975 (45P, 0.5mm)
 2. DD-134 board CN933 (8P, 1.0mm)(TRV model only)

4) The video light board (VL-29 board) need not be connected. To remove, disconnect the following connector. (Except for CCD-TR317/TR517/TRV47)
 1. VL-29 board CN151 (8P, 0.5mm)

5) The lens block (CD-239/240 board) need not be connected. To remove, disconnect the following connectors.
 1. VC-234 board CN501 (14P, 0.5mm)
 2. VC-234 board CN551 (24P, 0.5mm)

Note2: Setting the "Forced VTR Power ON" mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the VTR power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced VTR Power ON mode".

Note3: Setting the "Forced Camera Power ON" mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed.
After completing adjustments, be sure to exit the "Forced Camera Power ON mode".

Note4: Exiting the "Forced Power ON" mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-234 board CN982. Connect the measuring instruments via the CPC-7 jig (J-6082-382-A). The following table lists the pin numbers and signal names of CN982.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-3-1.

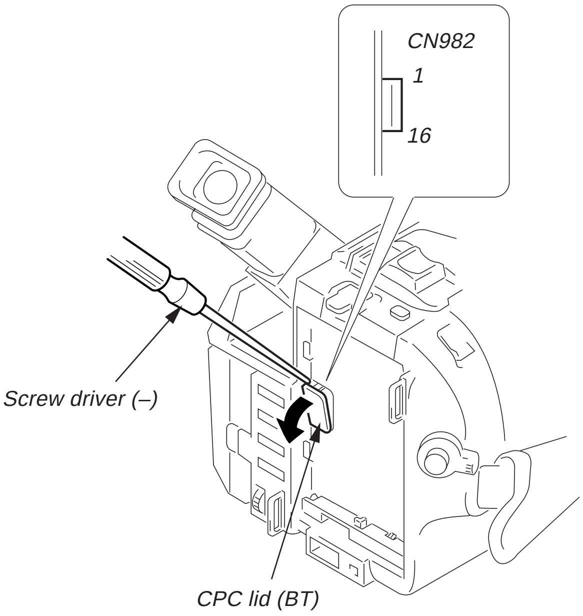


Fig. 5-3-1.

3-1-4. Connecting the Equipments

Connecting the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

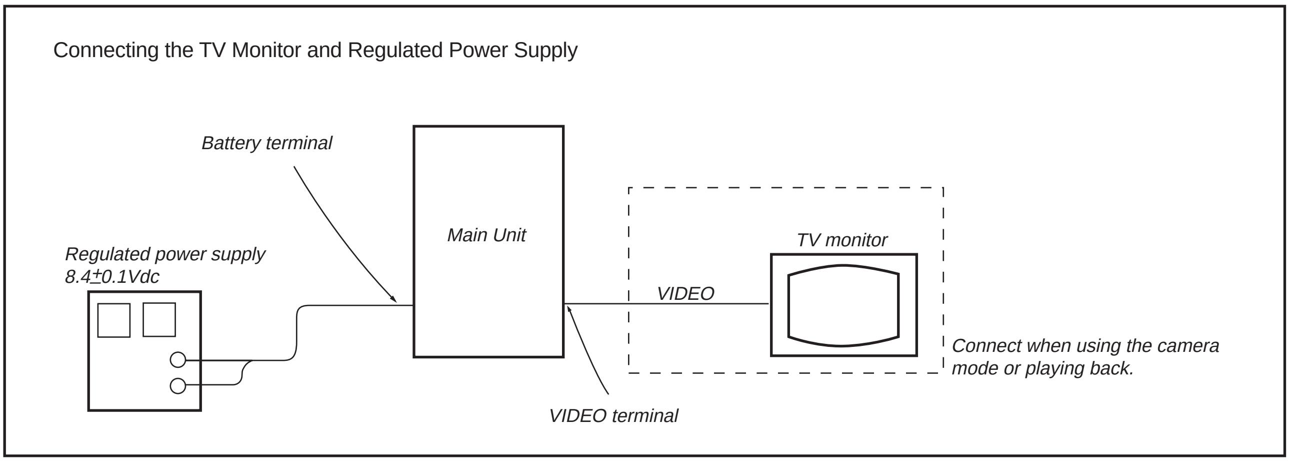

Connecting the TV Monitor and Regulated Power Supply
Battery terminal
Main Unit
TV monitor
Regulated power supply
8.4±0.1Vdc
VIDEO
Connect when using the camera mode or playing back.
VIDEO terminal

Fig. 5-3-2.

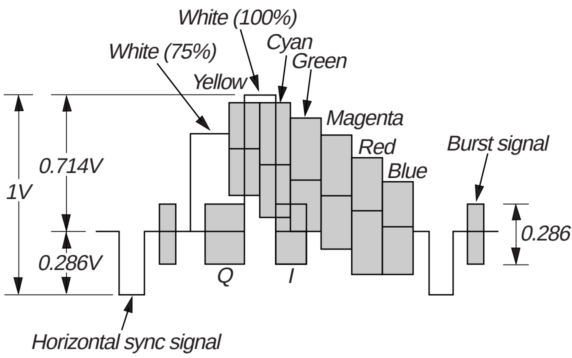
3-1-5. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

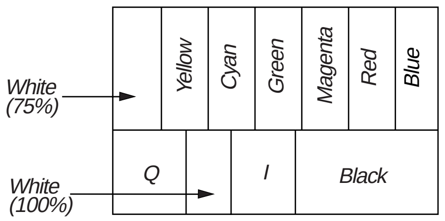
Name	Record-ing mode	Tape type	Tape speed	Usage
Tracking WR5-1NP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7NE	Hi8	ME	SP	Frequency characteristics adjustment
Operation check (SP mode) WR5-5NSP	Standard 8 mm	MP	SP	Checking operations
Operation check (SP mode) WR5-8NSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4NL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8NLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9NS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11NS	Hi8	MP	SP	BPF adjustment

Fig. 5-3-3. Shows the color bar signals recorded on the alignment tape.

Note : Measure using the VIDEO terminal (Terminated at 75 Ω).



Color bar signal waveform



Color bar Pattern

Fig. 5-3-3. Color Bar Signals of the Alignment Tape

3-1-6. Input/Output Level and Impedance

Video input/output
Phono jack, 1 Vp-p, 75Ω,
unbalanced, sync negative

S video input/output (CCD-TRV87/TRV87P only)
4-pin mini DIN
Luminance signal:
1Vp-p, 75Ω, unbalanced, sync negative
Chrominance signal:
0.286Vp-p 75Ω, unbalanced

Audio input/output
Phono jack,
Input: –7.5 dBs, input impedance more than 47 kΩ
Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

3-1-7. Recording Mode (Standard 8/Hi8) switching (CCD-TRV87/TRV87P)

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automatically according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of D, E, F, 7 Page Data

If the D, E, F, 7 page data is erased due to some reason, perform "1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA", of "5-1. CAMERA SECTION ADJUSTMENT"

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-234 board)

Improve the capstan servo characteristic. If it is not correct. jitters will increase.

Mode	Camera recording (SP mode)
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN982 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified value	Duty = 50 ± 1 %

Adjusting method:

1) Set to the Camera recording mode (SP mode).
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 6, address: 01, set data: 81, and press the PAUSE button of the adjustment remote commander. (to start up automatic CAP FG offset adjustment.)
4) Select page: 6, address: 02, and check that the data is "01".
5) Check that Duty of CAP FG signal satisfies the specified value. If not, select page: 6, address: 01, set data: 00, and press the PAUSE button, and then, repeat steps 1) to 5).
6) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.

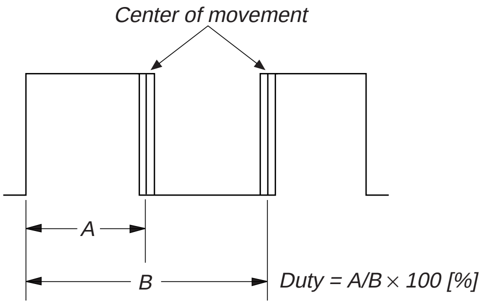


Fig. 5-3-4.

2. Switching Position Adjustment (VC-234 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1NP)
Measurement Point	CH1: Pin ⑪ of CN982 (RF SWP) CH2: Pin ⑥ of CN982 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62, 63
Specified Value	t1 = 0 ± 10 µsec

Adjusting Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 22, set data: C0, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 62, change the data and minimize "t1", and then press the PAUSE button of the adjustment remote commander. (Coarse adjustment)
4) Select page: F, address: 63, change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.

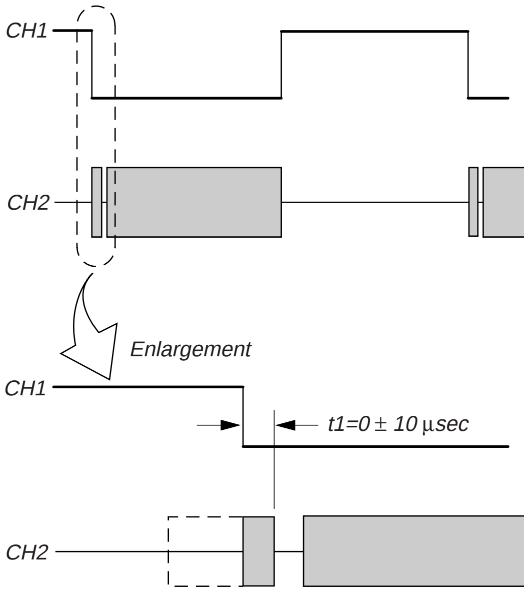


Fig. 5-3-5.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28MHz origin oscillation adjustment
2. AFC f_0 adjustment
3. Filter f_0 adjustment
4. Y OUT level adjustment
5. C OUT level adjustment
6. REC Y current adjustment
7. REC C/AFM Current Adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-234 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin (81) of IC201 or pin ⑫ of IC501
Measuring Instrument	Frequency counter
Adjustment Pag	F
Adjustment Address	4D
Specified Value	f=14318181 ± 68Hz

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 4D, change the data and set the clock frequency (f) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

VC-234 BOARD

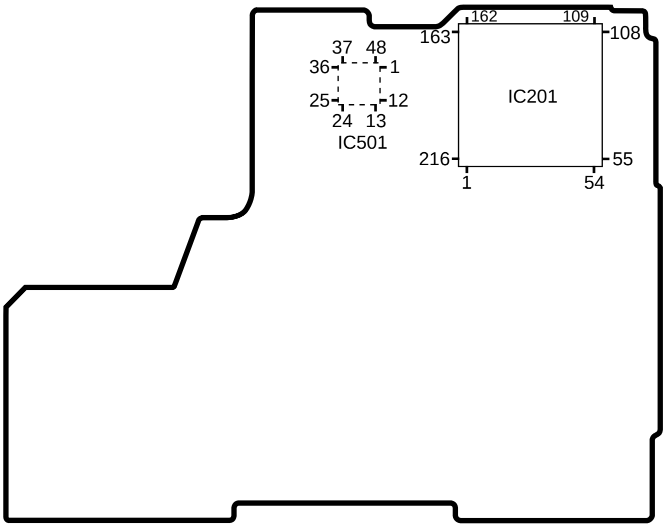


Fig. 5-3-6.

2. AFC f_0 Adjustment (VC-234 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 6, address: 02
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	65
Specified Value	01

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 4D, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 01, set data: C5, and press the PAUSE button.
(The AFC fo adjustment is performed and the adjustment data is stored in page: F, address: 65.)
4) Select page: 6, address: 02, and check that the data is “01”.
5) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
6) Select page: 2, address: 01, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

3. Filter f_0 Adjustment (VC-234 board)

Adjust the f_0 frequency of the IC641 built-in filter.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN982 (IR VIDEO)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: ON)
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 4F, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 05, and set data: 40.
4) Select page: F, address: 66, change the data and minimize the residual chroma signal components (A).
   (The data of address: 66 should be “70” to “7F”.)
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
7) Select page: 2, address: 05, and set data: 00.
8) Select page: 0, address: 01, and set data: 00.

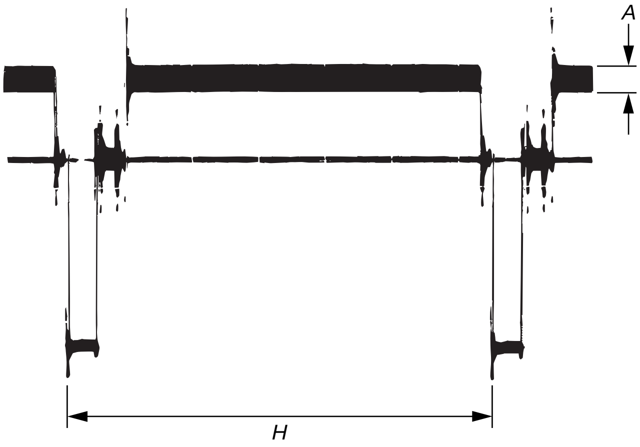


Fig. 5-3-7.

4. Y OUT Level Adjustment (VC-234 board)

Set the Y signal output level. (Adjust the D/A converter out put level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Y signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A=286 ± 5mV

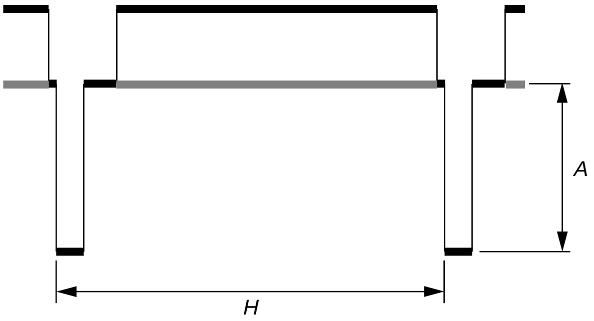
Note1: Hi8 model:
Insert the plug into the S VIDEO terminal.
Standard8 model:
Insert the plug into the VIDEO terminal.

Note2: Hi8 model:
CCD-TRV67/TRV87/TRV87P
Standard8 model:
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 67, change the data and set the SYNC level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

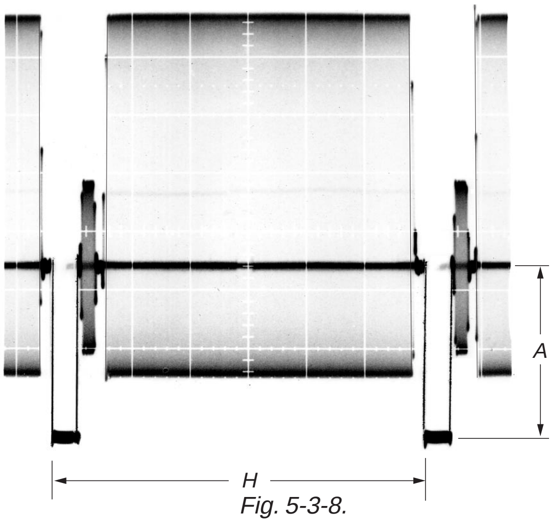


Fig. 5-3-8.

5. C OUT Level Adjustment (VC-234 board)

Set the chroma signal output level. (Adjust the D/A converter out put level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Chroma signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	68
Specified Value	A=286 ± 5mV

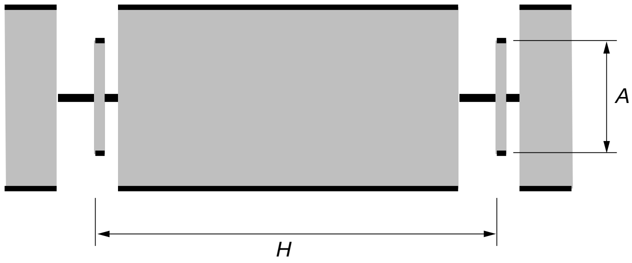
Note1: Hi8 model:
Insert the plug into the S VIDEO terminal.
Standard8 model:
Insert the plug into the VIDEO terminal.

Note2: Hi8 model:
CCD-TRV67/TRV87/TRV87P
Standard8 model:
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 68, change the data and set the burst level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

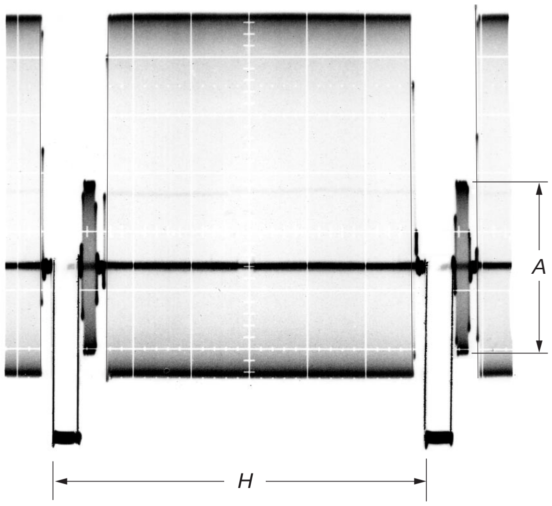


Fig. 5-3-9.

6. REC Y Current Adjustment (VC-234 board)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	6A, 6B
Specified Value	A=235 ± 5mV

Note: PLAYER model:
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67

Preparations only for the PLAYER model:

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to "1". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
3) Select page: D, address: 15, and memorize the data.
4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to "0".
5) Insert a tape, and set to recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin (93) of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
   4.7kΩ resistor: 1-249-425-11

Adjusting method:

1) Insert a tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: E, address: FB, set data: 06, and press the PAUSE button of the adjustment remote commander.
4) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
5) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 63, and set data: 01.
7) Select page: F, address: 6B, change the data and set the Y signal level (A) to the specified value.
8) Press the PAUSE button.
9) Select page: F, address: 6A, and set the same data as page: F, address: 6B, and press the PAUSE button.
10) Select page: F, address: 71, set the data noted down at step 4), and press the PAUSE button.
11) Select page: E, address: FB, set data: 04, and press the PAUSE button.
12) Select page: 6, address: 63, and set data: 00.
13) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
14) Select page: 0, address: 01, and set data: 00.

Processing after completed adjustment only for for the PLAYER model:

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of "Preparations only for the PLAYER model".
3) Press the PAUSE button.
4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of "Preparations only for the PLAYER model".
5) Press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

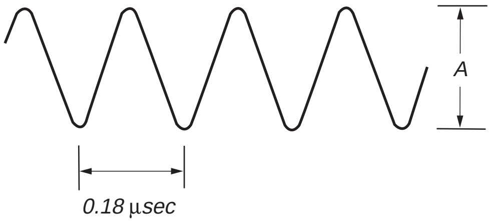


Fig. 5-3-10.

VC-234 BOARD

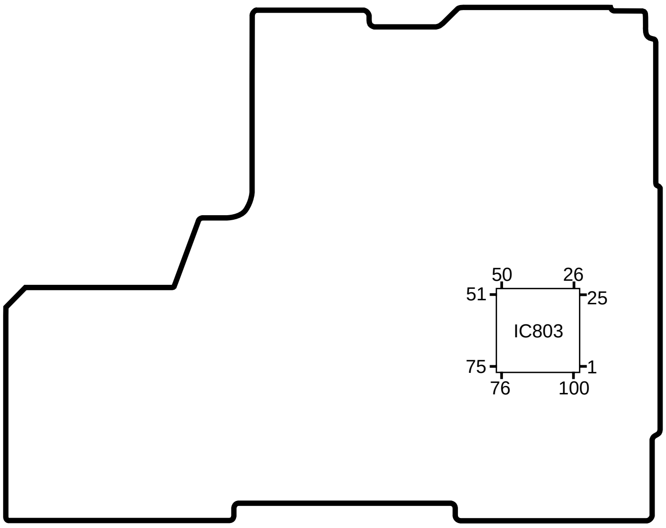


Fig. 5-3-11.

7. REC C/AFM Current Adjustment

Note: PLAYER model:
CCD-TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67

7-1. Preparations only for the PLAYER model

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to “1”. (Refer to “4-3, 3. Bit value discrimination” of “5-4. Service Mode”).
3) Select page: D, address: 15, and memorize the data.
4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to “0”.
5) Insert a Hi8 ME tape, and set to VTR recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin (93) of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
   4.7kΩ resistor: 1-249-425-11

7-2. REC C Current Check (VC-234 board)

Check the recording current levels of the REC Chroma signal. If it is too low, chroma signal noise in played back picture will be increased. If too high, Y signal noises will increase and white modulation noises will be produced.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Specified Value	A=50.8 ± 3.0mV

Adjusting method:

1) Insert a Hi8 ME tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 61, and set data: 30.
5) Select page: E, address: FB, set data: 05, and press the PAUSE button.
6) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
7) Check that the REC chroma signal level (A) satisfies the specified value, and note down the signal level.
8) Select page: F, address: 71, set the data noted down at step 6), and press the PAUSE button.
9) Select page: E, address: FB, set data: 04, and press the PAUSE button.
10) Select page: 6, address: 61, and set data: 10.
11) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
12) Select page: 0, address: 01, and set data: 00.
13) Perform “REC AFM Current Adjustment” and “Processing after completed adjustment only for the PLAYER model”.

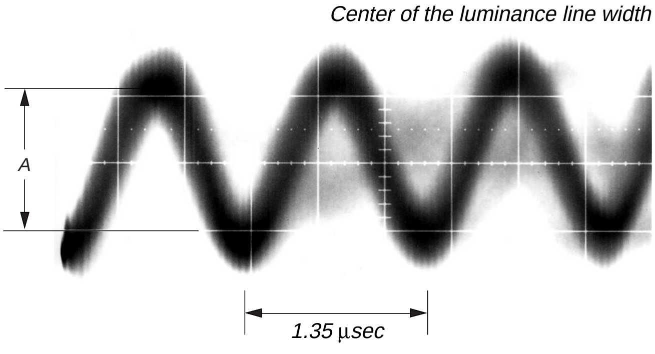


Fig. 5-3-12

7-3. REC AFM Current Adjustment (VC-234 board)

Set the recording levels of the REC AFM signal. If the level is too low, the audio S/N will be deteriorated. If too high, color beets will be produced on the self-recording / playback image.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	71
Specified Value	A= (REC Chroma signal level) × 0.292 ± 0.9mV (Note2)

Note1: Only for the STEREO model, do not insert any plug into the AUDIO (R) terminal.

Note2: REC Chroma signal level is noted down at step 7) of “REC C Current Check”.

Adjusting method:

1) Insert a Hi8 ME tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: E, address: FB, set data: 07, and press the PAUSE button of the adjustment remote commander.
4) Select page: F, address: 71, change the data and set the REC AFM signal level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: E, address: FB, set data: 04, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.
8) Perform “Processing after completed adjustment only for the PLAYER model”.

7-4. Processing after completed adjustment only for the PLAYER model

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of “Preparations only for the PLAYER model”.
3) Press the PAUSE button.
4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of “Preparations only for the PLAYER model”.
5) Press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

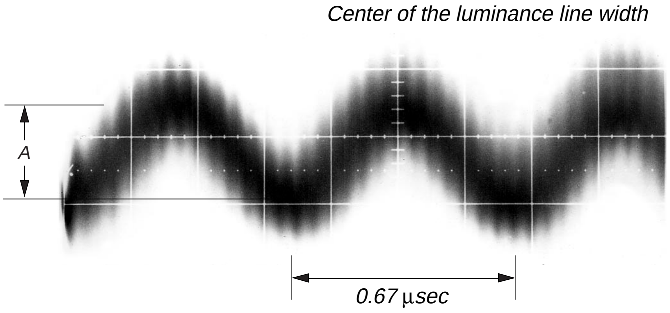


Fig. 5-3-13.

3-5. IR TRANSMITTER ADJUSTMENTS (CCD-TRV87/TRV87P)

Adjust using a IR receiver jig (J-6082-383-A).

Note : If the distance between the IR receiver jig and the camcorder is below 1m, cover the LASER LINK emitter with a ND filter. (For example, when the distance is 30cm to 50cm, cover the LASER LINK emitter with a ND filter 1.0.)

Switch setting:

LASER LINK .... ON (Red LED is lit)

1. IR Video Carrier Frequency Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN003 of IR receiver jig (RF) (Or Pin ⑯ of IC751 of VC-234 board)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	80
Specified Value	f = 11.85 ± 0.05 MHz

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

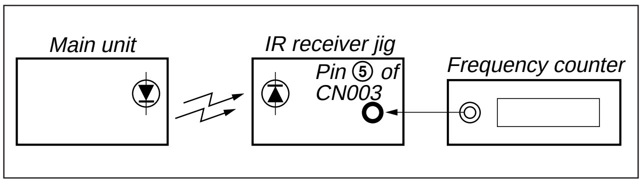


Fig. 5-3-14.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 37, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 80, change the data, and set the video carrier frequency (f) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

2. IR Video Deviation Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	VIDEO OUT terminal of IR receiver jig (Terminated at 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	7E
Specified Value	A = 0.87 ± 0.04 V

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

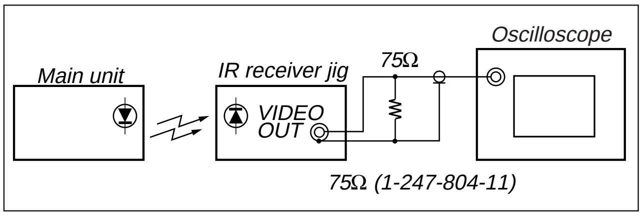


Fig. 5-3-15.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 39, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 7E, and change the data, set the video signal amplitude (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

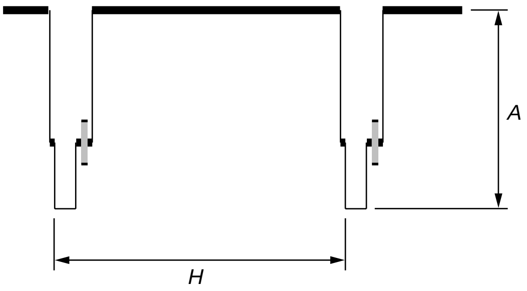


Fig. 5-3-16.

3. IR Audio Deviation Adjustment (VC-234 board)

Mode	VTR recording
Signal	Audio signal : 400Hz, –7.5dBs : L or R of AUDIO terminal Video signal : No signal : VIDEO terminal
Measurement Point	AUDIO L terminal and AUDIO R terminal of IR receiver jig (Terminated at 47kΩ)
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7F
Specified Value	Signal level: –7.5 ± 2.0 dBs Level difference of L and R: Below 2dB

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Connect the audio level meter to the AUDIO L terminal of the IR receiver jig.
3) Select page: F, address: 7F, change the data and set the 400Hz audio signal level to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Connect the audio level meter to the AUDIO R terminal of the IR receiver jig.
6) Check that the 400Hz audio signal level is within the specified value. If outside, repeat from step 2).
7) Select page: 0, address: 01, and set data: 00.

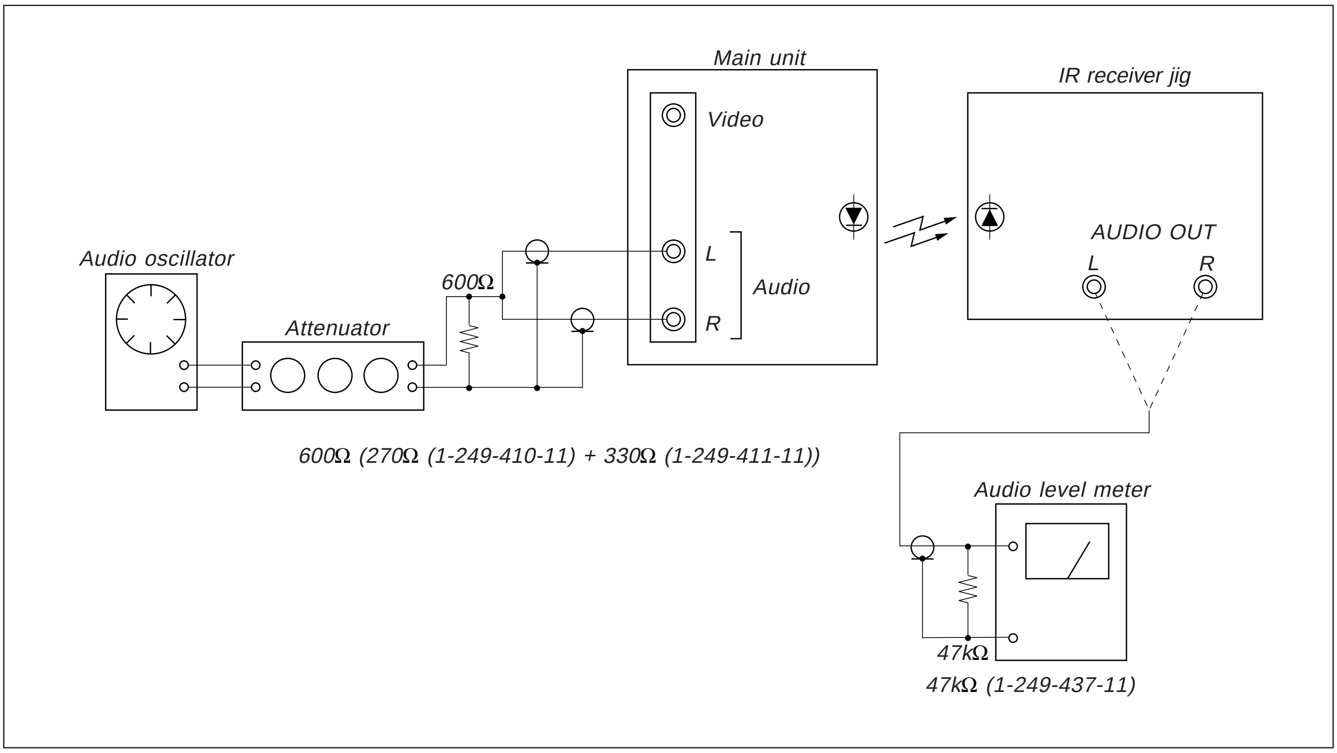

Main unit
IR receiver jig
Video
AUDIO OUT
L
R
Audio oscillator
600Ω
L
Audio
R
Attenuator
600Ω (270Ω (1-249-410-11) + 330Ω (1-249-411-11))
Audio level meter
47kΩ
47kΩ (1-249-437-11)

Fig. 5-3-17.

3-6. STEREO AUDIO SYSTEM ADJUSTMENT (CCD-TRV87/TRV87P)

- Perform the adjustment using color bar signal as a video signal input for the VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to “STEREO” position unless specified otherwise.

Note :

1) When inputting the audio signal, input same signal to both the L and R channels, unless otherwise.
2) Be sure insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode will be set, and correct adjustments can not be carried out.

[Monaural mode]

During recording	REC AFM RF 1.7MHz carrier will not be output.
During playback	The L + R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-18, and perform adjustments at the power switch [VTR] position.

[Adjustment Procedure]

1) 1.5MHz deviation adjustment
2) 1.7MHz deviation adjustment
3) BPF adjustment

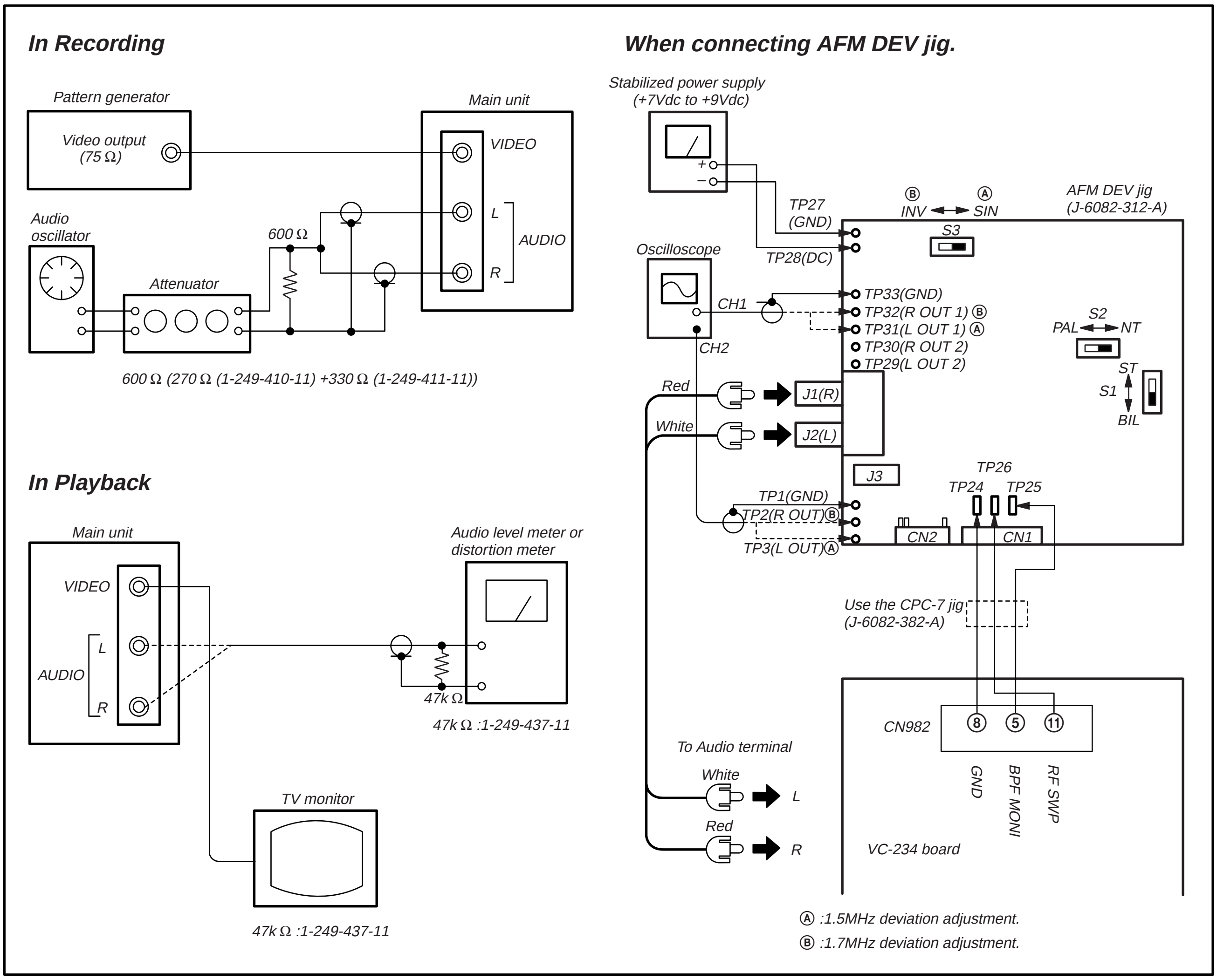

In Recording
Pattern generator
Video output (75 Ω)
Main unit
VIDEO
L
R
AUDIO
Audio oscillator
Attenuator
600 Ω
600 Ω (270 Ω (1-249-410-11) +330 Ω (1-249-411-11))
In Playback
Main unit
VIDEO
L
AUDIO
R
Audio level meter or distortion meter
47k Ω
47k Ω :1-249-437-11
TV monitor
47k Ω :1-249-437-11
When connecting AFM DEV jig.
Stabilized power supply (+7Vdc to +9Vdc)
+
−
TP27 (GND)
TP28(DC)
Ⓑ INV ◀▶ Ⓐ SIN
S3
AFM DEV jig (J-6082-312-A)
Oscilloscope
CH1
CH2
TP33(GND)
TP32(R OUT 1) Ⓑ
TP31(L OUT 1) Ⓐ
TP30(R OUT 2)
TP29(L OUT 2)
S2
PAL ◀▶ NT
ST
S1
BIL
Red
J1(R)
White
J2(L)
J3
TP26
TP24
TP25
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
CN2
CN1
Use the CPC-7 jig (J-6082-382-A)
CN982
⑧
⑤
⑪
GND
BPF MONI
RF SWP
To Audio terminal
White
L
Red
R
VC-234 board
Ⓐ :1.5MHz deviation adjustment.
Ⓑ :1.7MHz deviation adjustment.

Fig. 5-3-18.

1. 1.5 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the L-ch ((L+R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	F
Adjustment Address	7B
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect TP24, TP25 and TP26 of the AFM DEV jig to CN982 of the VC-234 board.
    TP24(GND) .... Pin ⑧ of CN982
    TP25(REC RF) .... Pin ⑤ of CN982
    TP26(RF SWP) .... Pin ⑪ of CN982
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28(DC), TP27(GND) of the AFM DEV jig to the DC power supply (+7Vdc to +9Vdc).
4) Set the AFM DEV jig switches to the following positions.
    S1 .... BIL Position
    S2 .... NT Position
    S3 .... SIN Position

Adjusting method :

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the INV (invert) mode.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: F, address: 7B, change the data and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

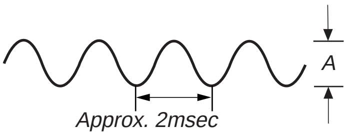


Fig. 5-3-19.

2. 1.7 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the R-ch ((L-R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring Instrument	Oscilloscope ADD mode CH2 normal mode
Adjustment Page	F
Adjustment Address	7C
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Connection:

1) Connect TP24, TP25 and TP26 of the AFM DEV jig to CN982 of the VC-234 board.
    TP24(GND) .... Pin ⑧ of CN982
    TP25(REC RF) .... Pin ⑤ of CN982
    TP26(RF SWP) .... Pin ⑪ of CN982
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28(DC), TP27(GND) of the AFM DEV jig to the DC power supply (+7Vdc to +9Vdc).
4) Set the AFM DEV jig switches to the following positions.
    S1 .... BIL Position
    S2 .... NT Position
    S3 .... INV Position

Adjusting method :

1) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
2) Set the oscilloscope to the ADD mode and CH2 to the normal mode.
3) Select page: 0, address: 01, and set data: 01.
4) Select page: F, address: 7C, change the data and minimize the audio signal level difference (A).
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

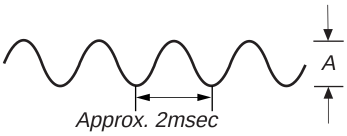


Fig. 5-3-20.

3. BPF f0 Adjustment (VC-234 board)

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11NS)
Measurement Point	Audio output terminal left or right
Measuring Instrument	distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The Main and Sub channel distortion rate should be almost the same (within ± 1%) and minimum.

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Set the Hi-Fi sound switch (menu display) to “2”.
3) Select page: F, address: 7D, change the data and minimize the distortion rate.
4) Press the PAUSE button of the adjustment remote commander.
5) Set the Hi-Fi sound switch (menu display) to “1”.
6) Select page: F, address: 7D, change the data and minimize the distortion rate.
7) Press the PAUSE button of the adjustment remote commander.
8) Repeat steps 2) to 7) and set the data of address: 64 so that the distortions rates when the Hi-Fi sound switch is set to “2” and set to “1” respectively are almost the same and minimum.
9) Press the PAUSE button of the adjustment remote commander.
10) Select page: 0, address: 01, and set data: 00.
11) Set the Hi-Fi sound switch to “STEREO”.

3-7. MONAURAL AUDIO SYSTEM ADJUSTMENT (CCD-TR317/TR517/TRV17/TRV37/TRV47/ TRV57/TRV57P/TRV67)

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments besides the video system measuring instruments as shown Fig. 5-3-21.

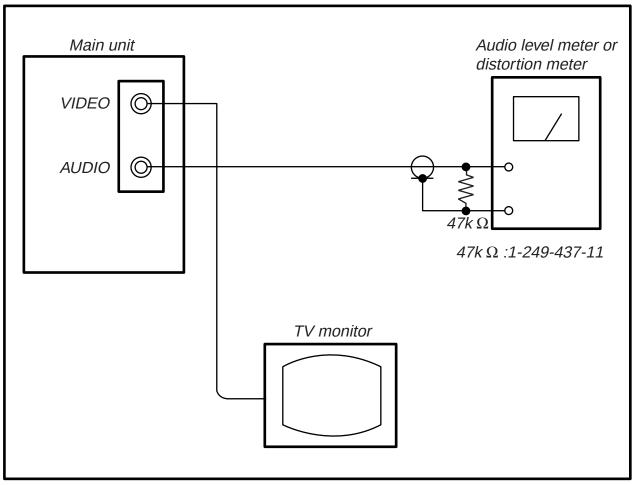


Fig. 5-3-21.

1. 1.5 MHz Deviation Adjustment (VC-234 board)

Adjust to the optimum audio FM signal deviation.
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5NSP)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7B
Specified Value	–7.5 ± 0.5dBs

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 7B, change the data and set the 400Hz signal level to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. BPF Adjustment (VC-234 board)

Adjust to the optimum audio BPF characteristics of the IC.
If the adjustment is not correct, the distortion rate and S/N ratio will worsen.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11NS)
Measurement Point	Audio output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The distortion rate should be and minimum.

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 7D, change the data and minimize the distortion rate.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

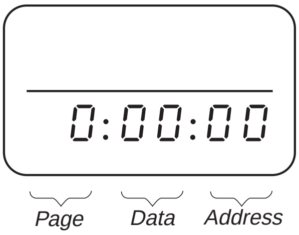


Fig. 5-4-1.

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F, 7 page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 is changed, return the data to the original condition.

1. Test Mode Setting

Set/release each test mode. Set page: 0, address: 01, data: 01 before setting the data of page D and F.

Page F	Address 22

Data	Function
80	Normal
81	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera + VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjustment remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off.

* Be sure to return the data of page: F, address: 22 to 80, and the data of page : D, address: 10 to 00 after completing adjustments/ repairs and press the PAUSE button of the adjustment remote commander. And set page: 0, address: 01, data: 00.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.
The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency.
Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10 to 1B to 00 after repairs/ adjustments.
Note 2: When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

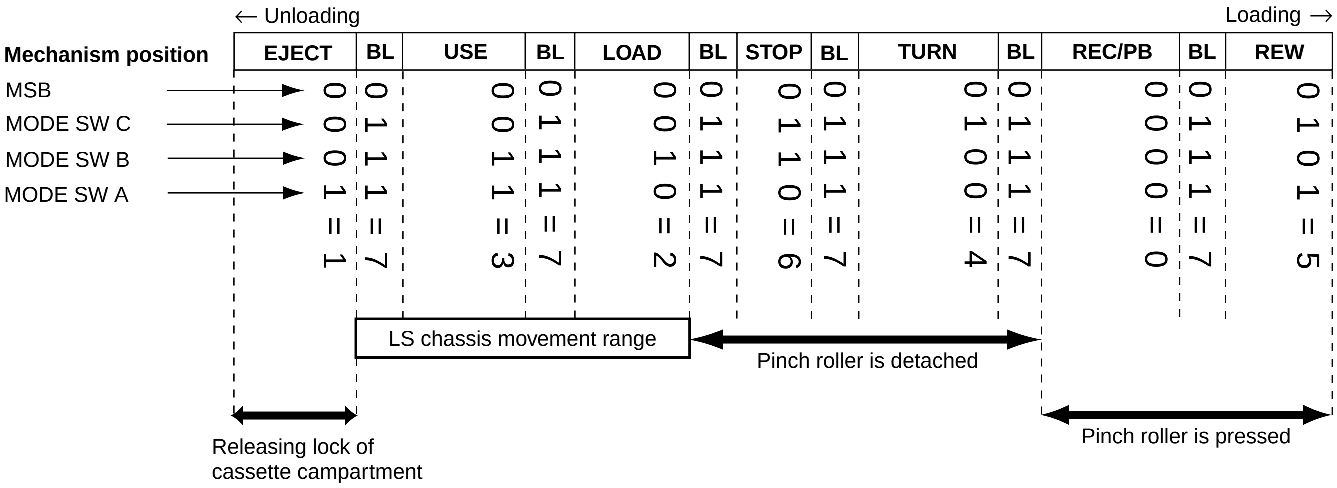
2-1. EMG code (Emergency code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW codes

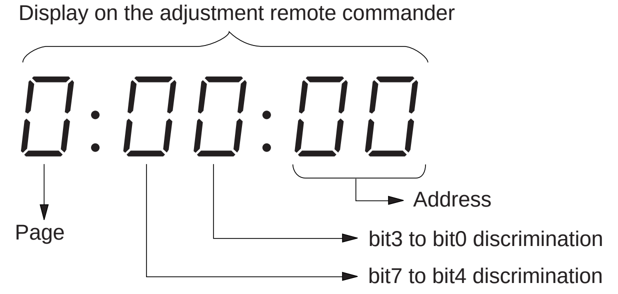
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.


← Unloading
Loading →
Mechanism position
EJECT
BL
USE
BL
LOAD
BL
STOP
BL
TURN
BL
REC/PB
BL
REW
MSB
MODE SW C
MODE SW B
MODE SW A
0 0 0 1 = 1
0 1 1 1 = 7
0 0 1 1 = 3
0 1 1 1 = 7
0 0 1 0 = 2
0 1 1 1 = 7
0 1 1 0 = 6
0 1 1 1 = 7
0 1 0 0 = 4
0 1 1 1 = 7
0 0 0 0 = 0
0 1 1 1 = 7
0 1 0 1 = 5
LS chassis movement range
Pinch roller is detached
Releasing lock of
cassette campartment
Pinch roller is pressed

Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
RECP/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Address
Page
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

Display on the adjustment remote commander	Bit values			
	bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
0	0	0	0	0
1	0	0	0	1
2	0	0	1	0
3	0	0	1	1
4	0	1	0	0
5	0	1	0	1
6	0	1	1	0
7	0	1	1	1
Ⓐ 8	1	0	0	0
9	1	0	0	1
A (A)	1	0	1	0
B (b)	1	0	1	1
C (C)	1	1	0	0
D (d)	1	1	0	1
Ⓑ E (E)	1	1	1	0
F (F)	1	1	1	1

4. Input/output selection check

Page 2	Address 49

Bit	Function	When bit value = 1	When bit value = 0
0			
1			
2			
3			
4	MIC jack (Note 1)	MIC jack is used	
5	AUDIO terminal (Note 1)	Monaural	Stereo
6	VIDEO terminal	VIDEO terminal is used	
7	S VIDEO terminal (Note 2)		S VIDEO terminal is used

Note 1: STEREO model only.
Note 2: Hi8 model only.

Using method:

1) Select page: 2, address: 49.
2) By discriminating the bit value of display data, the state of the input/output selection can be discriminated.

5. LED, LCD (display window) check

Page 2	Address 05	Bit5

Using method:

1) Select page: 2, address: 05, and set the bit value of Bit5 to “1”.
2) Check that all LED are lit and all segments of LCD (display window) are lit.
3) Select page: 2, address: 05, and set the bit value of Bit5 to “0”.

6. Record of Use check

Page 2	Address A2 to AA

Bit	Function		Remarks
A2	Drum rotation counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
A3		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4		Minute	
A5	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
A6		Month	
A7		Day	
A8	Final condensation occurrence date (BCD code)	Year	
A9		Month	
AA		Day	

Using method:

1) The record of use data is displayed at page: 2, addresses: A2 to AA.

Note: This data will be erased when the coin lithium battery (CF-66/67 board BH001) is removed (reset).

7. Switch check (1)

Page 2	Address 43

Bit	Function	When bit value = 1	When bit value = 0
0	VTR MODE SW (MA-374/375 board S302)	OFF	ON
1	CAM MODE SW (MA-374/375 board S303)	OFF	ON
2	START/STOP SW (SS-8500 block S002)	OFF	ON
3	EJECT SW (SS-8500 block S003)	OFF	ON
4	CC DOWN SW (Mechanism chassis)	OFF (UP)	ON (DOWN)
5	PHOTO FREEEZE SW (FP-49 flexible)(Note)	OFF	ON
6			
7			

Note: CCD-TRV87/TRV87P model only.

Using method:

1) Select page: 2, address: 43.
2) By discriminating the bit value of display data, the state of the switches can be discriminated.

8. Switch check (2)

Page 2	Address 60 to 66

Using method:

1) Select page: 2, address: 60 to 66.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0B	0C to 23	24 to 3E	3F to 5C	5D to 80	81 to A9	AA to D6	D7 to FF
60 (KEY AD0) (IC803 (93))	LASER LINK (FK-8500 block) (S008) Note2	STOP (FK-8500 block) (S001)	FF (FK-8500 block) (S003)	REC (FK-8500 block) (S005, 007) Note2	EDIT SEARCH(+) (FK-8500 block) (S009)	EDIT SEARCH(–) (FK-8500 block) (S010)		No key input
61 (KEY AD1) (IC803 (94))	PHOTO REC (FP-49 flexible) Note2	PAUSE (FK-8500 block) (S002)	REW (FK-8500 block) (S004)	PLAY (FK-8500 block) (S006)				No key input
62 (KEY AD2) (IC803 (95))	DIGITAL EFFECT (CF-66/67 board) (S001) Note2	PICTURE EFFECT (CF-66/67 board) (S016/004)	MENU (CF-66/67 board) (S006)	EXECUTE (CF-66/67 board) (S008/009)	TIME (CF-66/67 board) (S011/012)			No key input
64 (KEY AD4) (IC803 (97))			EXPOSURE (CF-66/67 board) (S007)	BACK LIGHT (CF-66/67 board) (S009/010)	FADER (CF-66/67 board) (S012/013)	FOCUS INFINITY (MR-8500 block) (S001)	FOCUS AUTO (MR-8500 block) (S001)	FOCUS MANUAL (MR-8500 block) (S001)
65 (KEY AD5) (IC803 (98))	DATE (CF-66/67 board) (S002)	COUNTER RESET (CF-66/67 board) (S005)	END SEARCH (CF-67 board) (S008) Note3	TITLE (CF-66/67 board) (S010/011)	DISPLAY (CF-67 board) (S014) Note3	SUPER NIGHT SHOT (FP-62 flexible) Note2	PANEL CLOSE	PANEL OPEN
66 (KEY AD6) (IC803 (99))	PROGRAM AE (CF-66/67 board) (S003 (Note4)) (S014 (Note5))	BRIGHT(+) (PD-117 board) (S5701)	BRIGHT(–) (PD-117 board) (S5702)	VOLUME(+) (PD-117 board) (S5703)	VOLUME(–) (PD-117 board) (S5704)	PANEL REVERSE (FP-152 flexible)		PANEL NORMAL (FP-152 flexible)

Note1: TR model / TRV model
TR model: CCD-TR317/TR517
TRV model: CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
Note2: CCD-TRV87/TRV87P model only
Note3: TRV model only
Note4: Except CCD-TR317/TR517 model
Note5: CCD-TR317/TR517 model only

9. Headphone jack check (TRV model only)

Page 2	Address 45

Bit	Function	When bit value = 1	When bit value = 0
1	Headphone jack	Headphone jack is used	

Using method:

1) Select page: 2, address: 45.
2) By discriminating the bit value of display data, the state of the headphone jack can be discriminated.

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

NOTE:

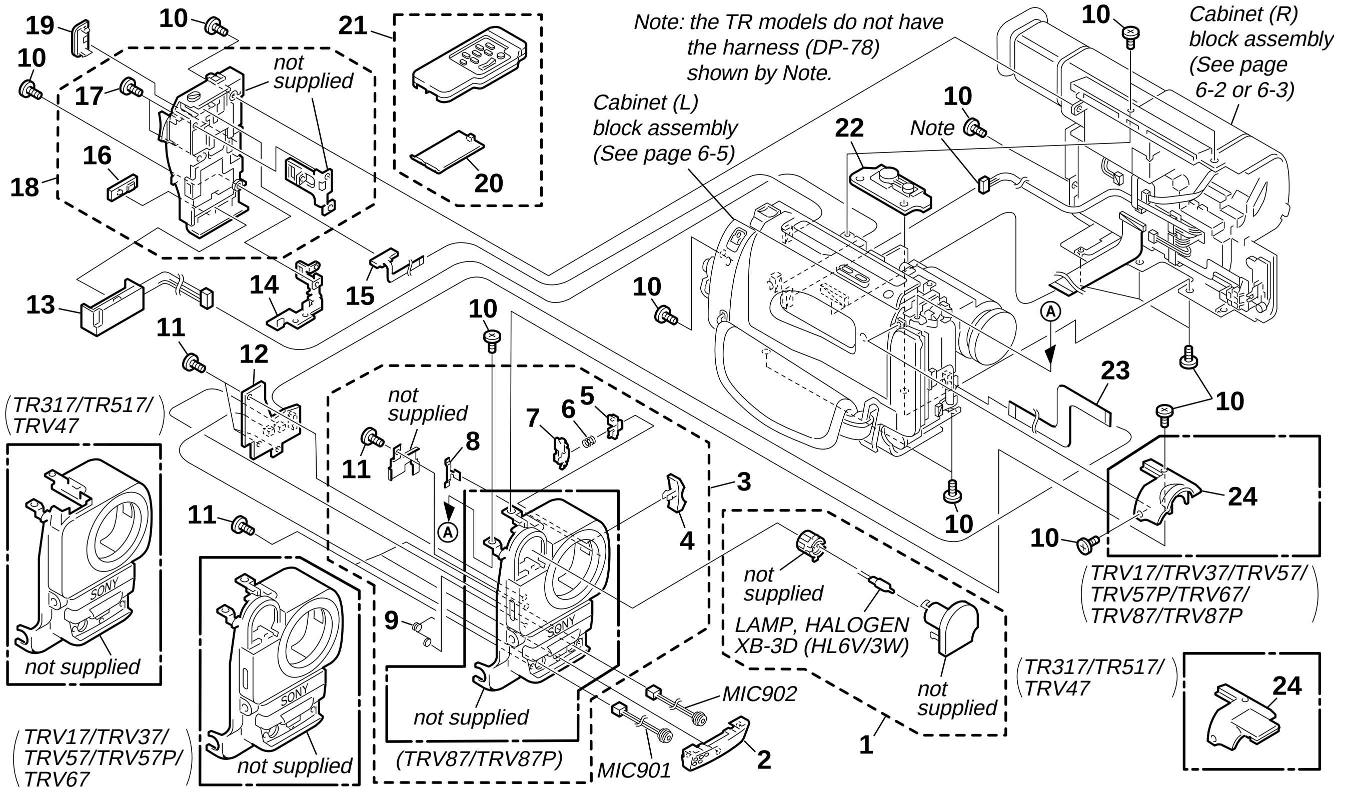
- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation

CND: Canadian model
KR: Korea model
HK: Hong Kong model
JE: Tourist model
BR: Brazilian model
AR: Argentina model

The components identified by mark ⚠or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

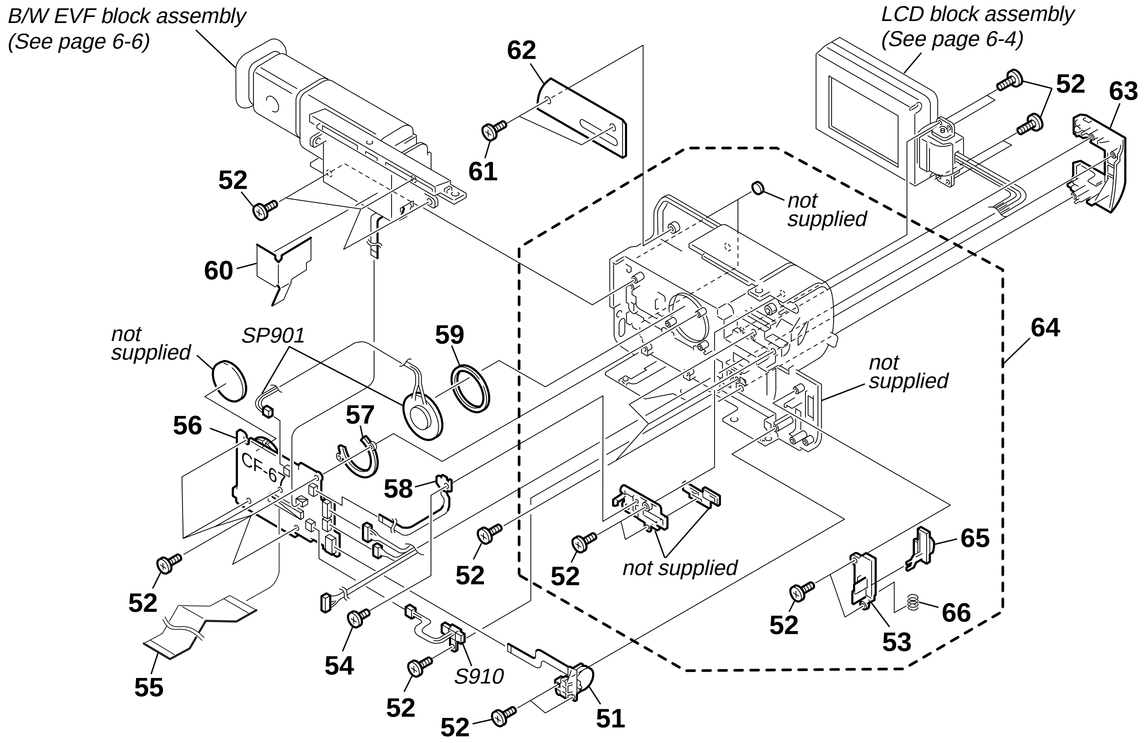
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-1. FRONT PANEL BLOCK ASSEMBLY AND BATTERY PANEL BLOCK ASSEMBLY


19
10
10
17
16
18
not supplied
21
20
Note: the TR models do not have the harness (DP-78) shown by Note.
Cabinet (L) block assembly (See page 6-5)
22
10
Note
10
Cabinet (R) block assembly (See page 6-2 or 6-3)
13
14
15
11
12
10
10
(TR317/TR517/TRV47)
not supplied
not supplied
5
6
7
8
11
A
3
4
11
9
not supplied
(TRV87/TRV87P)
MIC901
MIC902
2
not supplied
LAMP, HALOGEN XB-3D (HL6V/3W)
not supplied
1
A
23
10
10
24
10
(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
(TR317/TR517/TRV47)
24
(TRV17/TRV37/TRV57/TRV57P/TRV67)
not supplied
SONY

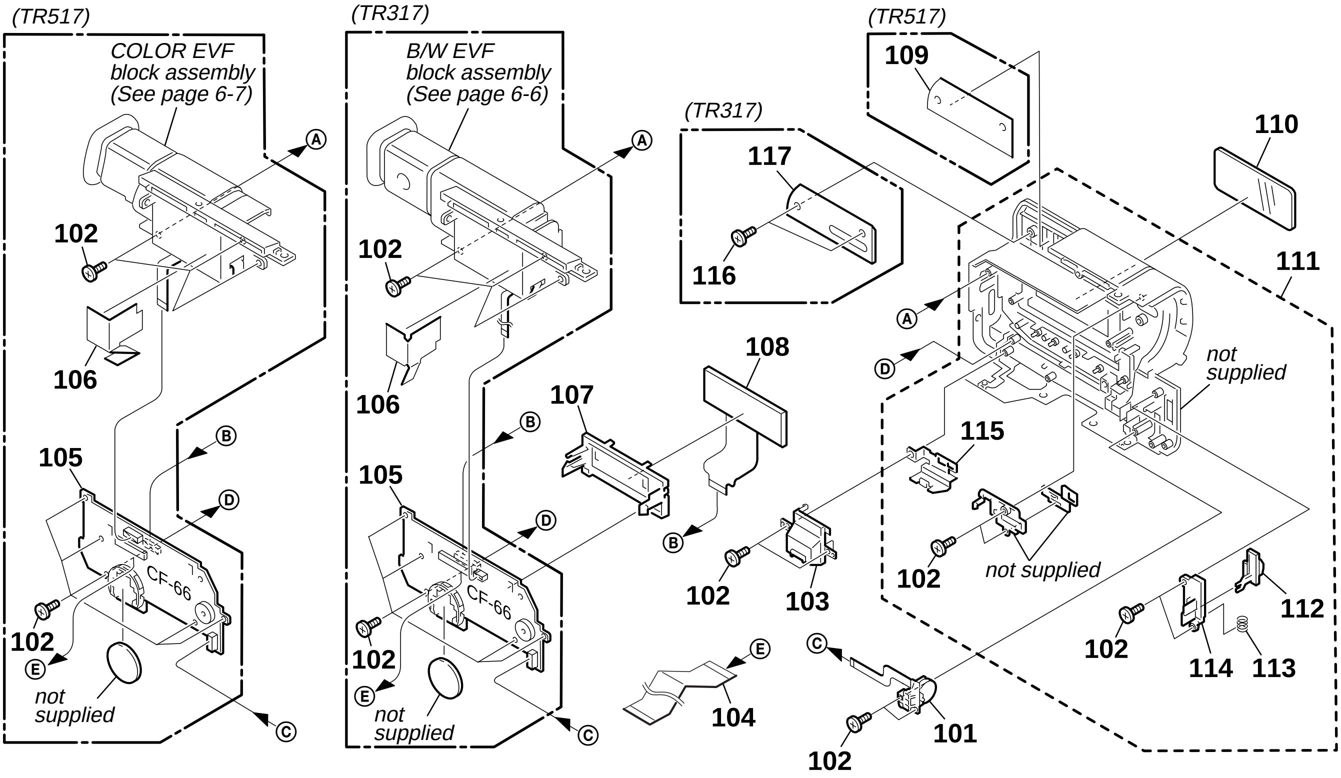
Ref. No.	Part No.	Description	Remarks
1	1-517-857-11	LIGHT, VIDEO	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
2	X-3949-326-1	GRILLE (D) ASSY, MICROPHONE	
3	X-3950-120-1	PANEL(97) ASSY, FRONT (TRV87/TRV87P)	
3	X-3950-121-1	PANEL(97) ASSY, FRONT	(TRV57/TRV57P/TRV67)
3	X-3950-122-1	PANEL(97) ASSY, FRONT (TR317/TR517)	
3	X-3950-123-1	PANEL(97) ASSY, FRONT (TRV47)	
3	X-3950-337-1	PANEL(97) ASSY, FRONT (TRV17/TRV37)	
4	3-987-631-01	KNOB,P	
5	3-053-597-01	BUTTON (D), LOCK	
6	3-973-619-01	SPRING, COMPRESSION	
7	3-053-596-01	HOLDER (D), P KNOB	
8	3-987-642-01	SPRING, CLICK	
9	3-987-882-01	SPRING, TORSION	
10	3-968-729-91	SCREW (M2), LOCK ACE, P2	
11	3-948-339-61	TAPPING	
12	A-7074-121-A	MA-375 (N-VHMMBO) BOARD,COMPLETE	(TRV57/TRV57P/TRV67)
12	A-7074-127-A	MA-375 (N-VHXRIBO) BOARD,COMPLETE	(TRV87/TRV87P)
12	A-7074-153-A	MA-374 (LO) BOARD,COMPLETE	(TR317/TR517)
12	A-7074-191-A	MA-375 (VO) BOARD,COMPLETE (TRV47)	
12	A-7074-228-A	MA-375 (N-VBL0) BOARD,COMPLETE	(TRV17/TRV37)
13	1-694-384-11	TERMINAL BOARD, BATTERY	
14	3-053-723-01	SHEET METAL (LOWER), STRAP	
15	1-672-663-21	FP-49 FLEXIBLE BOARD(TRV87/TRV87P)	
16	3-987-656-01	LID,JACK	
17	3-968-729-61	SCREW (M2X3), LOCK ACE, P2	
18	X-3950-109-1	PANEL (97) ASSY, BATTERY (TRV87/TRV87P)	
18	X-3950-110-1	PANEL (97) ASSY, BATTERY	(TR317:E,HK,KR/TR517:US,CND,E,AR/TRV17/TRV37:US,CND,E,AR/ TRV47/TRV57/TRV57P/TRV67:US,E,HK,KR,AR,JE)
18	X-3950-493-1	PANEL (97) ASSY, BATTERY	(TR317:BR/TR517:BR/TRV37:BR/TRV67:BR)
19	3-975-752-01	LID(BT), CPC	
20	3-958-131-01	LID,BATTERY CASE (for RMT-708)	(TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
21	1-467-574-21	REMOTE COMMANDER (RMT-708)	(TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
22	3-987-717-01	SCREW	
23	1-672-670-11	FP-43 FLEXIBLE BOARD	
24	3-053-603-01	CABINET (L), SHOE	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
24	3-058-251-01	CABINET (N) (97), SHOE	(TR317/TR517/TRV47)
MIC901	1-542-312-11	MICROPHONE (R)	
MIC902	1-542-312-11	MICROPHONE (L) (TRV87/TRV87P)	

6-1-2. CABINET (R) BLOCK ASSEMBLY (TRV MODEL) (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)


B/W EVF block assembly
(See page 6-6)
LCD block assembly
(See page 6-4)
62
52
63
61
52
not
supplied
60
64
not
supplied
SP901
59
not
supplied
56
57
CF-67
58
65
52
52
not supplied
52
52
66
53
54
S910
55
52
52
51

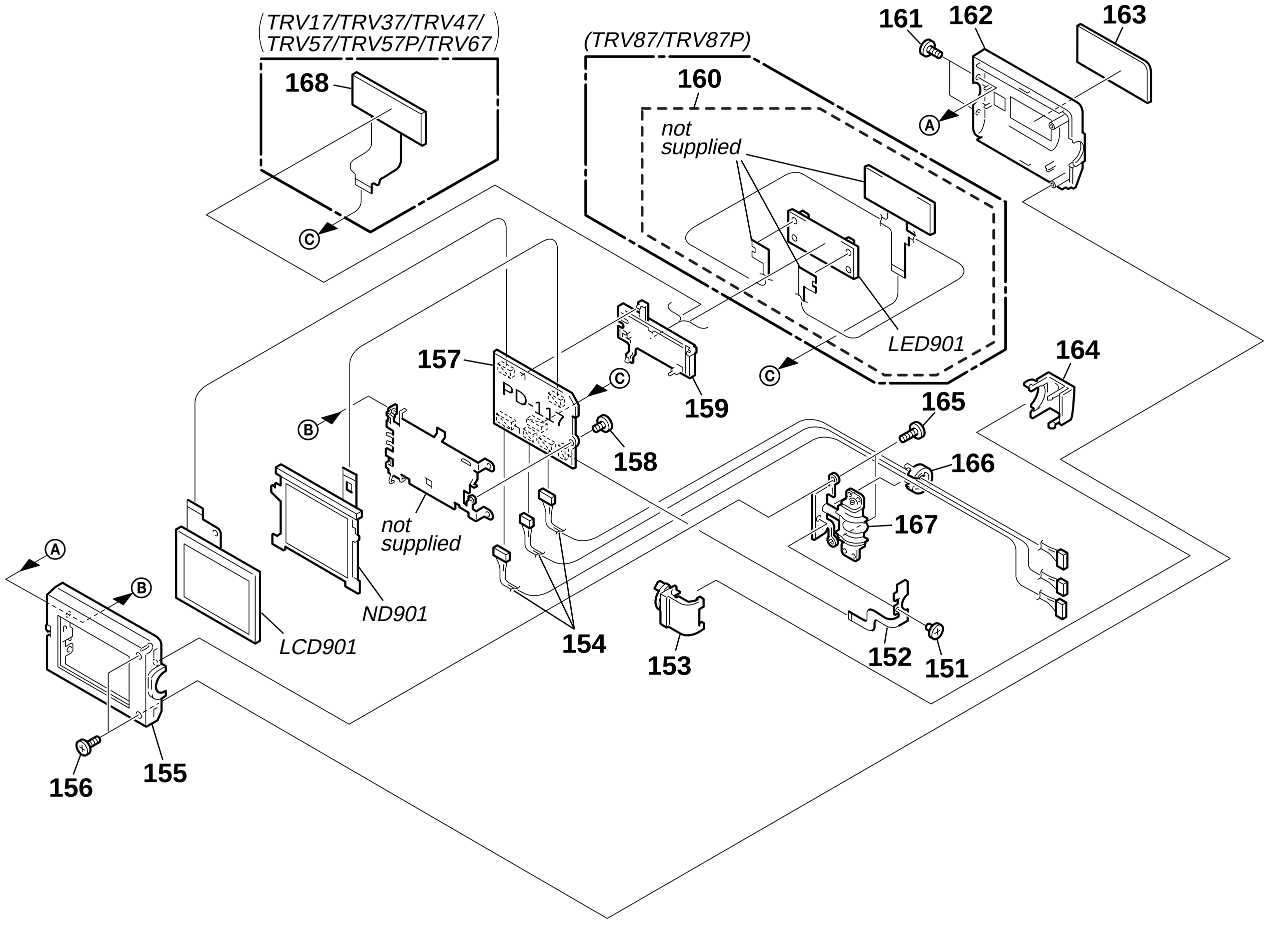
Ref. No.	Part No.	Description	Remarks
51	1-475-621-11	SWITCH BLOCK, CONTROL(MR-8500)	
52	3-948-339-61	TAPPING	
53	3-053-690-01	RETAINER (93), MF	
54	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	(TRV87/TRV87P)
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
56	A-7074-120-A	CF-67 (N-VHMMBO) BOARD,COMPLETE	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
56	A-7074-126-A	CF-67 (N-VHXRIBO) BOARD,COMPLETE	(TRV87/TRV87P)
* 57	3-053-783-01	RETAINER (93), SPEAKER	
58	1-672-668-21	FP-62 FLEXIBLE BOARD (TRV87/TRV87P)	
59	3-060-141-01	SPACER (97), SP	
* 60	3-059-290-01	GUIDE (97), HARNESS	
61	3-948-339-81	TAPPING	
62	3-053-684-01	GUIDE (B) (93), TILT	
63	3-053-706-31	COVER (R) (93), HINGE (TRV87/TRV87P)	
63	3-053-706-41	COVER (R) (93), HINGE	(TRV57/TRV57P/TRV67)
63	3-053-706-51	COVER (R) (93), HINGE (TRV17/TRV37/TRV47)	
64	X-3950-096-1	CABINET (R) (98) ASSY (TRV87/TRV87P)	
64	X-3950-097-1	CABINET (R) (98) ASSY	(TRV57/TRV57P/TRV67)
64	X-3950-098-1	CABINET (R) (98) ASSY (TRV17/TRV37/TRV47)	
65	3-053-689-21	KNOB(93), MF	
66	3-568-315-01	SPRING, COMPRESSION	
S910	1-771-848-11	SWITCH, PUSH	
SP901	1-504-753-41	SPEAKER (2.8CM)	

6-1-3. CABINET (R) BLOCK ASSEMBLY (TR MODEL) (TR317/TR517)


(TR517)
COLOR EVF
block assembly
(See page 6-7)
(TR317)
B/W EVF
block assembly
(See page 6-6)
(TR517)
109
(TR317)
117
116
110
111
not
supplied
A
A
A
B
B
B
C
C
C
D
D
D
E
E
E
102
106
105
CF-66
not
supplied
108
107
115
103
not supplied
112
113
114
104
101

Ref. No.	Part No.	Description	Remarks
101	1-475-621-11	SWITCH BLOCK, CONTROL(MR-8500)	
102	3-948-339-61	TAPPING	
103	3-053-717-11	RETAINER, LITHIUM BATTERY	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
105	A-7074-152-A	CF-66 (N-LO) BOARD,COMPLETE (TR317)	
105	A-7074-156-A	CF-66 (N-CO) BOARD,COMPLETE (TR517)	
* 106	3-059-290-01	GUIDE (97),HARNESS (TR317)	
* 106	3-059-310-01	GUIDE (C) (97), HARNESS (TR517)	
107	3-058-238-01	HOLDER (97), LCD	
108	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL	
* 109	3-058-246-01	BLIND (97), CVF (TR517)	
110	3-058-219-01	WINDOW (97), LCD (TR517)	
110	3-058-219-11	WINDOW (97), LCD (TR317)	
111	X-3950-088-1	CABINET (R) (97) ASSY	
112	3-056-469-01	KNOB (93), MF	
113	3-568-315-01	SPRING, COMPRESSION	
114	3-053-690-01	RETAINER (93), MF	
115	3-053-713-01	LID(92), LITHIUM BATTERY	
116	3-948-339-81	TAPPING (TR317)	
117	3-053-684-01	GUIDE (B) (93), TILT (TR317)	

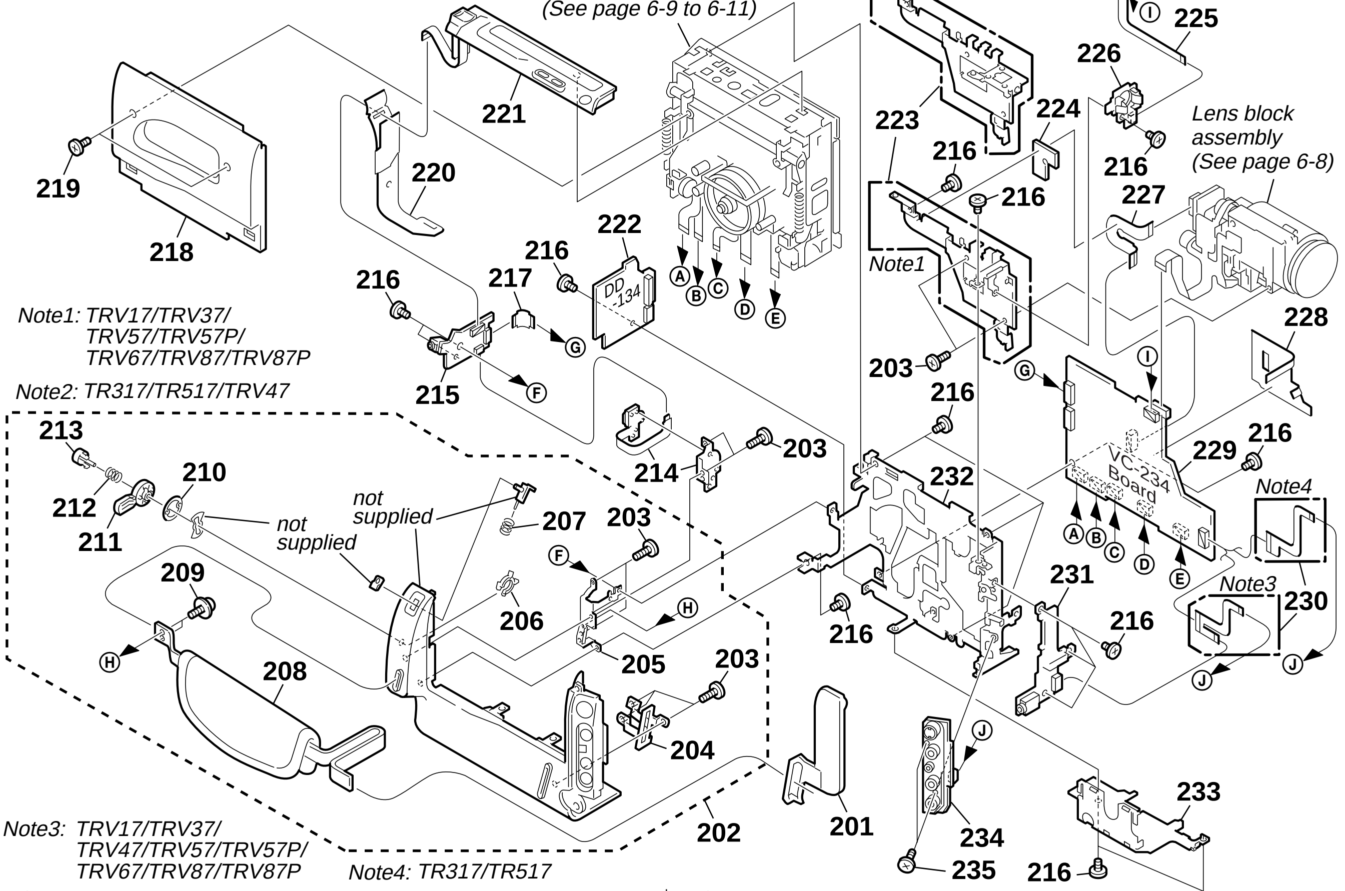
6-1-4. LCD BLOCK ASSEMBLY (TRV MODEL)
(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)


(TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67)
168
C
(TRV87/TRV87P)
160
not
supplied
LED901
C
161
162
163
A
164
157
PD-117
C
159
165
B
158
166
167
not
supplied
ND901
A
B
LCD901
154
153
152
151
156
155

Ref. No.	Part No.	Description	Remarks
151	4-981-286-01	SCREW (M1.7X2) (IB LOCK)	
152	1-676-300-11	FP-152 FLEXIBLE BOARD	
153	3-058-244-01	COVER (M) (98), HINGE	
154	1-960-161-11	HARNESS (DP-78)	
155	X-3949-335-1	CABINET (M) (93) ASSY, P	
156	3-948-339-81	TAPPING	
157	A-7074-229-A	PD-117 (N-SH) BOARD,COMPLETE	
158	3-713-786-21	SCREW (M2X3)	
159	3-053-702-01	HOLDER (93), LCD (TRV87/TRV87P)	
159	3-058-243-01	HOLDER (98), LCD (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)	
160	A-7094-150-A	INDICATION LCD BLOCK ASSY (TRV87/TRV87P)	
161	3-968-729-91	SCREW (M2), LOCK ACE, P2	
162	3-058-210-01	CABINET (C) (98), P (TRV87/TRV87P)	
162	3-058-210-11	CABINET (C) (98), P (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)	
163	3-058-220-01	WINDOW (98), LCD (TRV87/TRV87P)	
163	3-058-220-11	WINDOW (98), LCD (TRV67)	
163	3-058-220-21	WINDOW (98), LCD (TRV37)	
163	3-058-220-31	WINDOW (98), LCD (TRV57/TRV57P)	
163	3-058-220-41	WINDOW (98), LCD (TRV47)	
163	3-059-033-11	WINDOW (98), LCD (TRV17)	
164	3-053-707-01	COVER (C) (93), HINGE (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)	
164	3-053-707-21	COVER (C) (93), HINGE (TRV87/TRV87P)	
165	3-948-339-31	SCREW, TAPPING	
166	3-987-623-01	CLAMP, HARNESS	
167	X-3950-108-1	HINGE (98) ASSY	
168	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)	
LCD901	1-803-852-31	INDICATOR MODULE, LIQUID CRYSTAL	
⚠LED901	1-517-858-11	LIGHT, BACK (TRV87/TRV87P)	
⚠ND901	1-517-752-31	TUBE, FLUORESCENT,COLD CATHODE	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-5. CABINET (L) BLOCK ASSEMBLY


Mechanism deck
(See page 6-9 to 6-11)
Note2
225
226
221
223
224
Lens block
assembly
(See page 6-8)
220
216
216
219
216
227
218
222
216
217
Note1
DD-134
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A
B
C
D
E
228
Note1: TRV17/TRV37/
TRV57/TRV57P/
TRV67/TRV87/TRV87P
G
203
Note2: TR317/TR517/TRV47
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214
VC-234 Board
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Note4
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supplied
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211
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supplied
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A B C D E
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Note3
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J
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Note3: TRV17/TRV37/
TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
Note4: TR317/TR517
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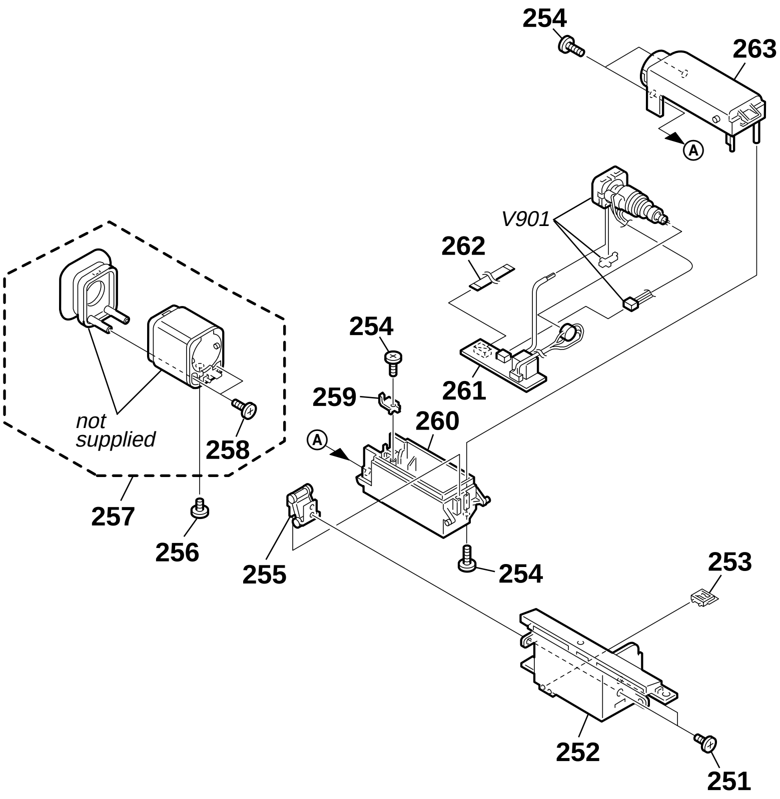
216

Ref. No.	Part No.	Description	Remarks
* 201	3-975-522-11	COVER, JACK	
202	X-3950-112-1	CABINET (L) ASSY (TRV87/TRV87P)	
202	X-3950-113-1	CABINET (L) ASSY (TRV67)	
202	X-3950-114-1	CABINET (L) ASSY	(TRV17/TRV37/TRV47/TRV57/TRV57P)
202	X-3950-115-1	CABINET (L) ASSY (TR317/TR517)	
203	3-948-339-61	TAPPING	
204	3-975-966-01	SHEET METAL (2), SS	
* 205	3-058-248-01	HOLDER (97), EL	
206	3-949-192-01	HOLDER, STAND-BY KNOB	
207	3-979-642-01	SPRING, COMPRESSION	
208	3-052-815-01	BELT (ES), GRIP	
209	3-679-362-11	SCREW	
210	3-970-854-01	SPRING, STAND-BY	
211	3-969-081-01	KNOB, STAND-BY	
212	3-302-492-00	SPRING, COMPRESSION	
213	3-054-010-01	BUTTON, S/S	
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)	
215	A-7074-149-A	EJ-30 (VHXRIBO) BOARD,COMPLETE	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
215	A-7074-162-A	EJ-29 (CO) BOARD,COMPLETE (TR317/TR517)	
216	3-713-786-21	SCREW (M2X3)	
217	1-676-298-11	FP-150 FLEXIBLE BOARD	
218	X-3948-329-1	LID ASSY, CASSETTE	(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P)
218	X-3948-331-1	LID ASSY, CASSETTE (TRV67/TRV87/TRV87P)	
219	3-968-729-81	SCREW (M2), LOCK ACE, P2	
* 220	3-058-247-01	PROTECTOR (97), LS FLEXIBLE	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500)	(TRV87/TRV87P)
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500)	(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
222	A-7074-113-A	DD-134 (VO) BOARD,COMPLETE (TRV47)	
222	A-7074-119-A	DD-134 (VHMMBO) BOARD,COMPLETE	(TRV17/TRV37/TRV57/TRV57P/TRV67)
222	A-7074-125-A	DD-134 (VHXRIBO) BOARD,COMPLETE	(TRV87/TRV87P)
222	A-7074-151-A	DD-134 (LO) BOARD,COMPLETE (TR317)	
222	A-7074-155-A	DD-134 (CO) BOARD,COMPLETE (TR517)	
223	3-053-741-01	FRAME (S), LENS (TR317/TR517/TRV47)	

Ref. No.	Part No.	Description	Remarks
* 223	3-053-742-01	FRAME (L), LENS	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
* 224	3-058-969-02	CUSHION (97), CD FLEXIBLE	
225	1-672-673-11	FP-46 FLEXIBLE BOARD	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
226	A-7074-130-A	VL-29 (VHXRIBO) BOARD,COMPLETE	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
227	1-676-296-11	FP-147 FLEXIBLE BOARD	
* 228	3-058-250-01	SHEET (97), IM GUARD	
229	A-7094-702-A	VC-234 (N-LO) BOARD,COMPLETE (SERVICE)	(TR317)
229	A-7094-703-A	VC-234 BOARD,COMPLETE (SERVICE)(TR517)	
229	A-7094-711-A	VC-234 (N-VHXRIBO)BOARD,COMPLETE	(SERVICE)(TRV87/TRV87P)
229	A-7094-712-A	VC-234 (N-VHMMBO)BOARD,COMPLETE	(SERVICE)(TRV67)
229	A-7094-713-A	VC-234 (N-VMMB0)BOARD,COMPLETE	(SERVICE)(TRV57/TRV57P)
229	A-7094-714-A	VC-234 (N-VO)BOARD,COMPLETE (SERVICE)	(TRV47)
229	A-7094-728-A	VC-234 (N-VBLO)BOARD,COMPLETE(SERVICE)	(TRV17/TRV37)
230	1-672-671-11	FP-44 FLEXIBLE BOARD	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
230	1-676-297-11	FP-149 FLEXIBLE BOARD (TR317/TR517)	
231	A-7074-116-A	SE-101 (N-VLO) BOARD,COMPLETE	(TRV17/TRV37/TRV47)
231	A-7074-123-A	SE-101 (N-VHMMBO) BOARD,COMPLETE	(TRV57/TRV57P/TRV67)
231	A-7074-129-A	SE-101 (N-VHXRIBO) BOARD,COMPLETE	(TRV87/TRV87P)
232	3-053-743-01	FRAME (A), MD	
233	3-987-675-01	FRAME (B), MD	
234	A-7074-115-A	PJ-100 (N-VLO) BOARD,COMPLETE	(TRV17/TRV37/TRV47/TRV57/TRV57P)
234	A-7074-122-A	PJ-100 (N-VHMMBO) BOARD,COMPLETE	(TRV67)
234	A-7074-128-A	PJ-100 (N-VHXRIBO) BOARD,COMPLETE	(TRV87/TRV87P)
234	A-7074-158-A	PJ-99 (CO) BOARD,COMPLETE (TR317/TR517)	
235	3-968-729-91	SCREW (M2), LOCK ACE, P2	

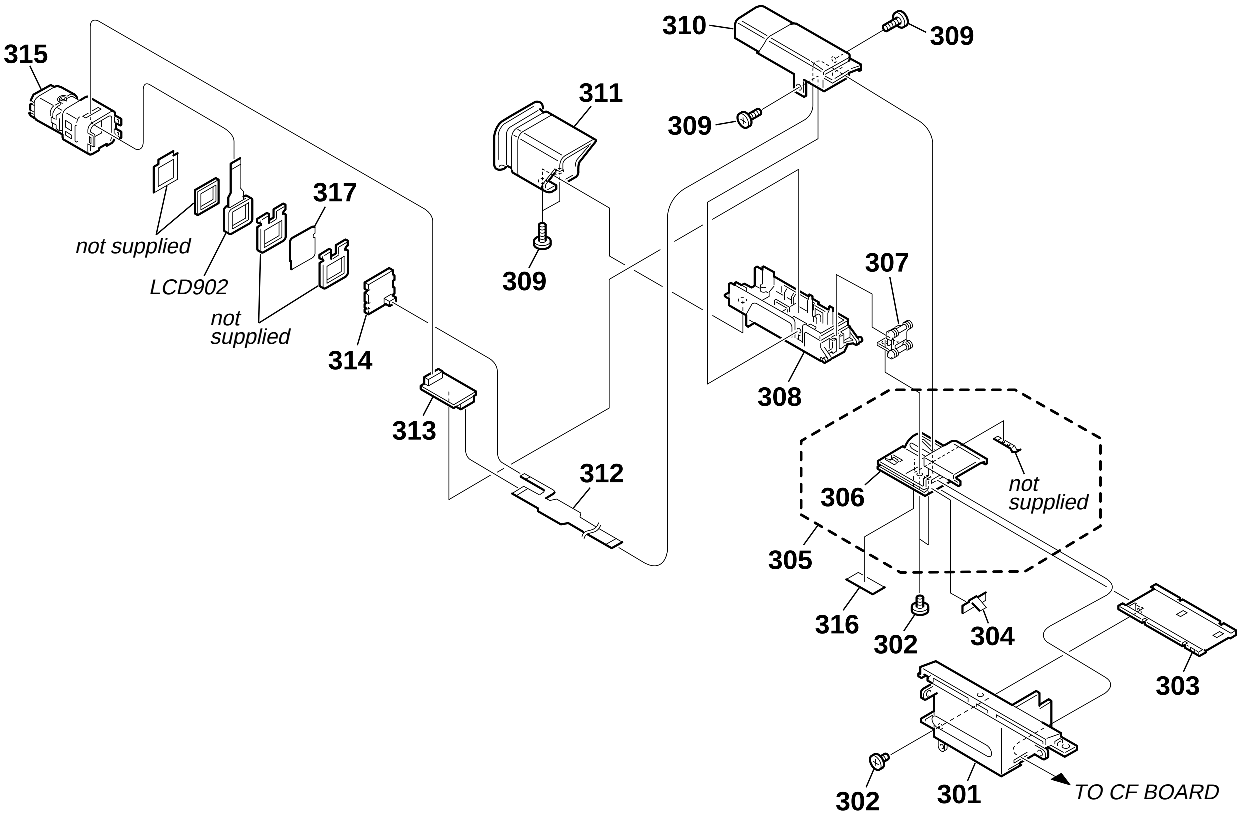
6-1-6. B/W EVF BLOCK ASSEMBLY (TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)



Ref. No.	Part No.	Description	Remarks
251	3-713-786-21	SCREW (M2X3)	
252	3-058-245-01	BASE (B) (97), VF	
253	3-053-685-01	LOCK (93), TILT	
254	3-948-339-81	TAPPING	
255	X-3949-327-1	ARM (B) ASSY, CRANK	
256	3-975-898-01	SCREW (T), F LOCK	
257	X-3949-329-1	FINDER (S) ASSY	
258	3-948-339-61	TAPPING	
259	3-053-681-01	TALLY, EVF	
260	3-053-679-02	CABINET (LOWER B) (93), EVF	(TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
260	3-053-679-21	CABINET (LOWER B) (93), EVF	(TRV87/TRV87P)
261	A-7073-838-A	VF-129 (N) BOARD,COMPLETE	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)	
263	X-3949-328-2	CABINET (UPPER B) (93) ASSY	(TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
263	X-3950-119-1	CABINET (UPPER B) (93) ASSY	(TRV87/TRV87P)
⚠V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

6-1-7. COLOR EVF BLOCK ASSEMBLY (TR517)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317
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LCD902
not supplied
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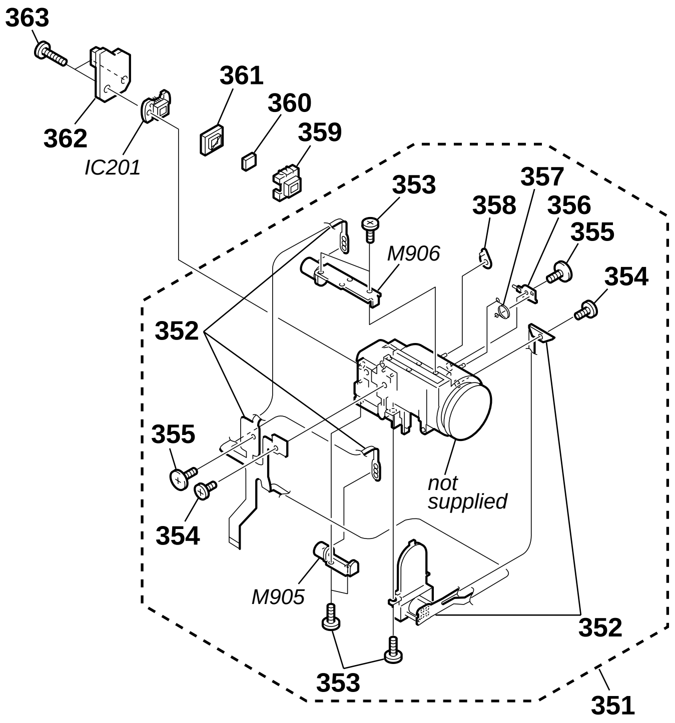
TO CF BOARD

Ref. No.	Part No.	Description	Remarks
301	3-058-249-01	BASE (C) (97), VF	
302	3-968-729-81	SCREW (M2), LOCK ACE, P2	
303	3-058-231-01	BASE (C) (97), SLIDE FIXED	
304	3-054-141-01	RETAINER, HARNESS	
305	X-3950-103-1	BASE (C) (97) ASSY, SLIDE	
306	3-058-228-01	BASE (C) (97), SLIDE	
307	X-3949-331-1	ARM (C) ASSY, CRANK	
308	X-3950-102-1	CABINET (LOWER) (C) (97) ASSY, EVF	
309	3-948-339-81	TAPPING	
310	3-053-671-01	CABINET (UPPER) (C) (92), EVF	
311	X-3950-100-1	CABINET (REAR) (C) (97) ASSY, EVF	
312	1-676-299-11	FP-151 FLEXIBLE BOARD	
313	A-7074-193-A	VF-141 BOARD,COMPLETE	
314	A-7074-192-A	LB-62 BOARD,COMPLETE	
315	X-3950-101-1	LENS (C) (97) ASSY, VF	
* 316	3-058-899-01	SHEET (97), ELECTROSTATIC	
317	3-058-233-01	ILLUMINATOR (97), BL	
LCD902	8-753-026-74	LCX0032-AK-J	

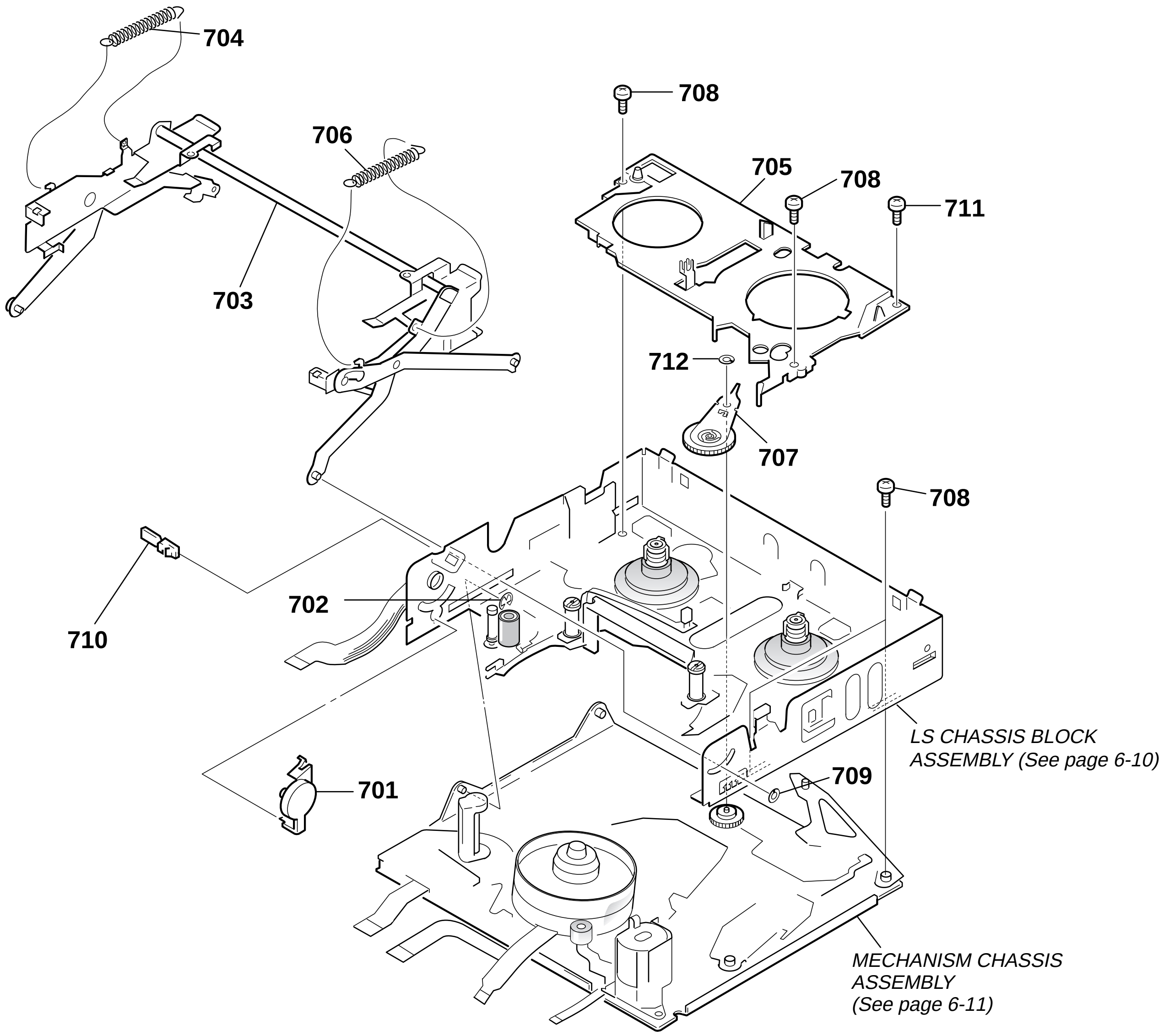
6-1-8. LENS BLOCK ASSEMBLY



Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks
351	8-848-729-01	DEVICE, LENS LSV-630A	
352	X-3949-355-2	IRIS FLEXIBLE ASSY 630	
353	3-713-791-41	SCREW,TAPPING(M1.7X5),P2	
354	3-713-791-51	SCREW,TAPPING(M1.7X3.5),P2	
355	3-056-022-01	TAPPING(B1.7X3.5),HEAD	
356	3-053-827-01	LEVER,IR	
357	3-053-800-01	SPRING,RETAIN	
358	3-053-799-01	GEA,IR	
359	3-978-981-11	ADAPTOR (FK), CCD FITTING	
360	1-758-084-21	FILTER BLOCK, OPTICAL	(TR317/TR517/TRV17/TRV37/TRV47/TRV87/TRV87P)
360	1-758-133-21	FILTER BLOCK, OPTICAL	(TRV57/TRV57P/TRV67)
361	3-953-817-01	RUBBER (F), SEAL (TRV57/TRV57P/TRV67)	
361	3-968-054-11	RUBBER (FM), SHIELD	(TR317/TR517/TRV17/TRV37/TRV47/TRV87/TRV87P)
362	A-7074-148-A	CD-240 (VHXRIBO) BOARD,COMPLETE	(TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
362	A-7074-161-A	CD-239 (CO) BOARD,COMPLETE	(TR317/TR517)
363	3-318-203-11	SCREW (B1.7X6), TAPPING	
IC201	A-7031-040-A	CCD BLOCK ASSY	(TR317/TR517/TRV17/TRV37/TRV47)
IC201	A-7031-052-A	CCD BLOCK ASSY (TRV87/TRV87P)	
IC201	A-7031-055-A	CCD BLOCK ASSY (TRV57/TRV57P/TRV67)	
M905	1-763-262-11	MOTOR, STEPPING F630	
M906	1-763-046-21	MOTOR, STEPPING Z600	

6-1-9. CASSETTE COMPARTMENT ASSEMBLY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LS CHASSIS BLOCK ASSEMBLY (See page 6-10)
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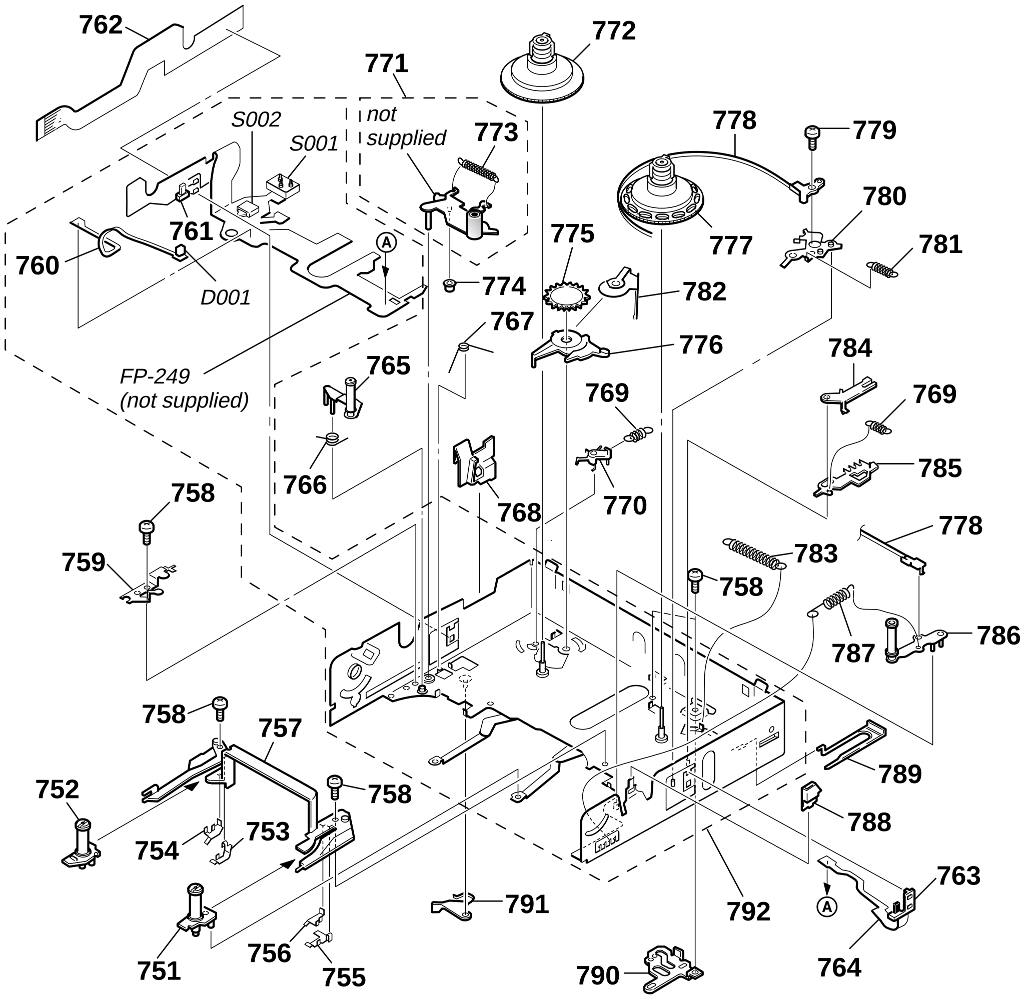
701
MECHANISM CHASSIS ASSEMBLY (See page 6-11)

Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY		707	X-3945-399-1	GEAR ASSY, GOOSENECK	
702	7-624-102-04	STOP RING 1.5, TYPE -E		708	3-947-503-01	SCREW (M1.4X2.5)	
703	X-3949-153-2	CASSETTE COMPARTMENT ASSY		709	3-979-686-01	WASHER, STOPPER	
704	3-965-587-03	SPRING (POWER TENSION),TENSION		710	3-971-076-01	FASTENER, D	
705	3-989-479-01	RETAINER (2), GOOSENECK		711	3-976-055-01	SCREW (M1.4X1)	
706	3-973-268-01	SPRING (POWER TENSION),TENSION		712	3-331-007-21	WASHER	

6-1-10. LS CHASSIS BLOCK ASSEMBLY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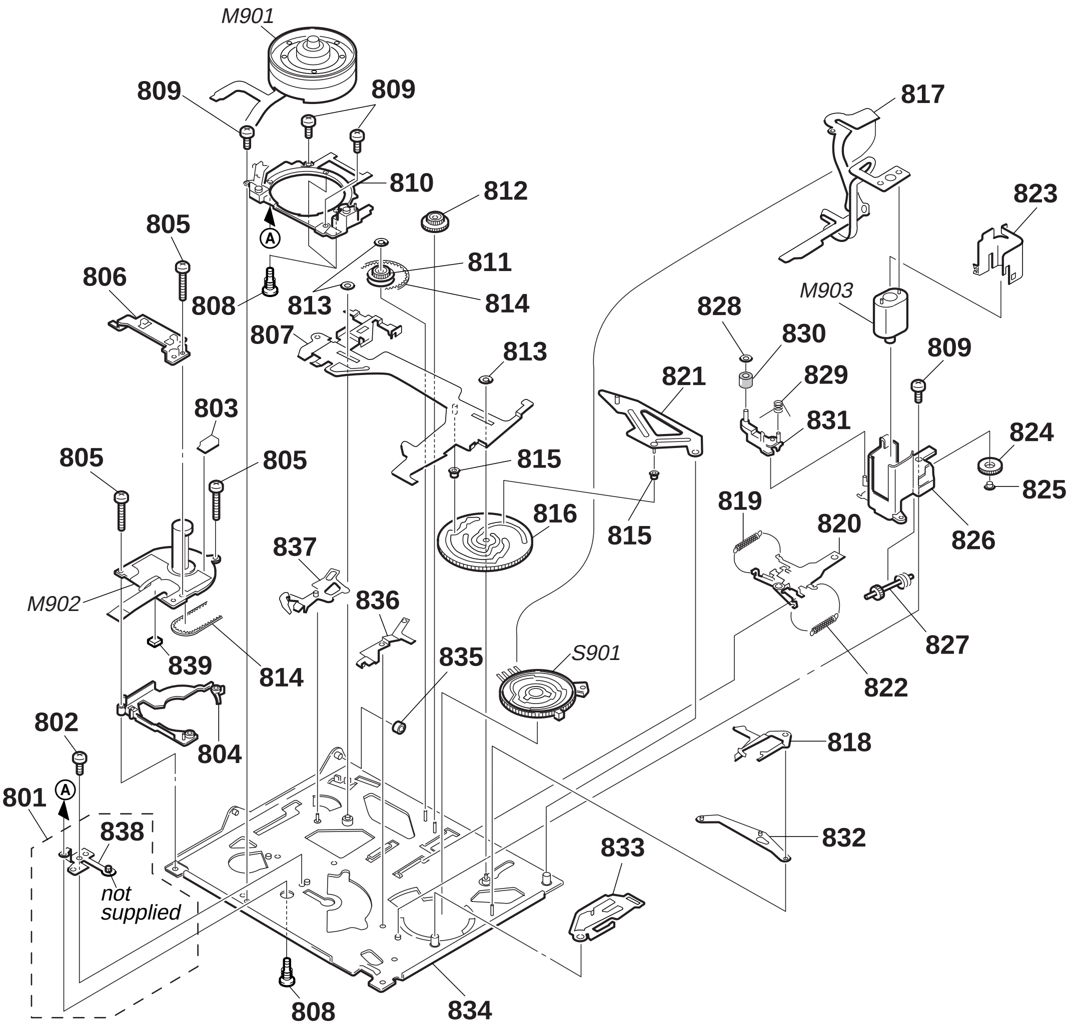
Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-B	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER,SENSOR(T)	
762	1-657-786-13	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER,SENSOR(S)	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING (RETURN, TG4), TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-11	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-03	RATCHET, T	
771	X-3949-380-1	ARM ASSY (E), PINCH	
772	X-3945-398-2	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING (ARM, RVS), TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION COIL	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-B	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453	
S001	1-682-614-11	SWITCH,PUSH (3KEY) (Hi8 MP,ME/MP,REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

6-1-11. MECHANISM CHASSIS ASSEMBLY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Ref. No.	Part No.	Description	Remarks
801	X-3947-343-1	GROUND (IM) ASSY, SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-054-404-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4 X 6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	3-971-644-02	SLIDER (2), M	
808	X-3947-895-1	SCREW ASSY, DRUM ATTACHED	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-494-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING (LIMITTER ARM T), COIL	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-21	ARM, LS	
822	3-965-535-01	SPRING (LIMITTER ARM S), COIL	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING (RETURN, HC), TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3949-589-2	CHASSIS ASSY, MECHANICAL	
835	3-965-526-02	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-974-320-02	GROUND (IM), SHAFT	
839	3-987-953-01	SPACER, RUBBER	
S901	1-762-436-15	SWITCH, ROTARY (ENCODER)	
M901	A-7048-897-A	DRUM BLOCK ASSY (DGH-0F0A-R)(NTSC)	
M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- COILS
  uH: μH
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...
- Abbreviation
  CND: Canadian model
  KR: Korea model
  HK: Hong Kong model
  JE: Tourist model

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
	A-7074-161-A	CD-239 BOARD, COMPLETE (TR317/TR517)			
		************************************			
		(Ref.No.;1000 Series)			
		(IC201 is not included in this complete board.)			
		< CAPACITOR >			
C201	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
		< CONNECTOR >			
CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P			
		< COIL >			
L201	1-414-757-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q201	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
		< RESISTOR >			
R201	1-216-797-11	METAL CHIP	10	5%	1/16W
R202	1-216-809-11	METAL CHIP	100	5%	1/16W
R203	1-216-833-91	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
	A-7074-148-A	CD-240 BOARD, COMPLETE (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)			
		**************************************			
		(Ref.No.;1000 Series)			
		(IC201 is not included in this complete board.)			
		< CAPACITOR >			
C201	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C204	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C205	1-135-210-11	TANTALUM CHIP	4.7uF	20%	10V
		< CONNECTOR >			
CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P			
		< COIL >			
L201	1-414-757-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q201	8-729-117-73	TRANSISTOR	2SC4178-F13F14-T1		
		< RESISTOR >			
R201	1-216-797-11	METAL CHIP	10	5%	1/16W
R202	1-216-809-11	METAL CHIP	100	5%	1/16W
R203	1-216-833-91	RES-CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
	A-7074-152-A	CF-66 BOARD, COMPLETE (TR317)			
		****************************			
	A-7074-156-A	CF-66 BOARD, COMPLETE (TR517)			
		****************************			
		(Ref.No.;1000 Series)			
		< BATTERY HOLDER >			
BH001	1-550-104-11	HOLDER, BATTERY			
		< BUZZER >			
BZ002	1-529-104-21	BUZZER, PIEZOELECTRIC			
		< CAPACITOR >			
C003	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C004	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V (TR317)
C004	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V (TR517)
		< CONNECTOR >			
CN001	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P			
CN002	1-774-765-11	CONNECTOR, FFC/FPC 8P			
CN006	1-779-334-11	CONNECTOR, FFC/FPC 20P (TR517)			
* CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P (TR317)			
CN010	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P			
		< DIODE >			
D002	8-719-421-27	DIODE MA728-(K8).S0			
D005	8-719-073-03	DIODE MA8082-(K8).S0			
D006	8-719-073-03	DIODE MA8082-(K8).S0			
D008	8-719-073-01	DIODE MA111-TX			
		< IC >			
IC001	8-759-573-02	IC BU9735K-E2			

Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L001	1-216-295-91	SHORT	0		(TR517)
L002	1-216-295-91	SHORT	0		(TR517)
L003	1-216-295-91	SHORT	0		(TR517)
L004	1-469-527-91	INDUCTOR	47uH		
L005	1-469-527-91	INDUCTOR	47uH		
		< TRANSISTOR >			
Q001	8-729-402-42	TRANSISTOR	UN5213-TX(TR317)		
		< RESISTOR >			
R001	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R005	1-216-833-91	RES-CHIP	10K	5%	1/16W
R006	1-216-833-91	RES-CHIP	10K	5%	1/16W
R007	1-216-833-91	RES-CHIP	10K	5%	1/16W
R008	1-216-833-91	RES-CHIP	10K	5%	1/16W
R011	1-216-855-11	METAL CHIP	680K	5%	1/16W
R012	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R013	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R014	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R015	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R016	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R017	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R018	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R020	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R021	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R023	1-216-834-11	METAL CHIP	12K	5%	1/16W
R025	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R028	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R032	1-216-838-11	METAL CHIP	27K	5%	1/16W
R044	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R045	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R046	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R047	1-216-864-11	METAL CHIP	0	5%	1/16W (TR517)
R048	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317)
		< SWITCH >			
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)			
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)			
S006	1-771-029-21	SWITCH, TACTILE (MENU) (TR317/TR517)			
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)			
S008	1-771-025-41	SWITCH, ROTARY (SEL/PUSH EXEC)			(TR317/TR517)
S009	1-771-138-61	SWITCH, KEY BOARD (BACK LIGHT)			(TR317/TR517)
S010	1-771-138-61	SWITCH, KEY BOARD (TITLE) (TR317/TR517)			
S011	1-771-138-61	SWITCH, KEY BOARD (TIME)			
S012	1-771-138-61	SWITCH, KEY BOARD (FADER)			
S014	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)			
S015	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)			(TR317/TR517)

Ref. No.	Part No.	Description			Remarks
	A-7074-126-A	CF-67 BOARD, COMPLETE (TRV87/TRV87P) ************************************			
	A-7074-120-A	CF-67 BOARD, COMPLETE (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67) **			
					(Ref.No.;1000 Series)
		< BATTERY HOLDER >			
BH001	1-550-104-11	HOLDER, BATTERY			
		< CAPACITOR >			
C001	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C004	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
		< CONNECTOR >			
CN001	1-785-760-21	CONNECTOR, FFC/FPC (ZIF) 45P			
CN002	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P			
* CN003	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
CN004	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P			
CN005	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			
CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P			
CN008	1-766-644-21	CONNECTOR, FFC/FPC 8P (TRV87/TRV87P)			
CN008	1-774-633-11	CONNECTOR, FFC/FPC 8P (TRV87/TRV87P)			
* CN009	1-580-055-21	PIN, CONNECTOR (SMD) 2P			
		< DIODE >			
D002	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D008	8-719-421-27	DIODE MA728-(K8).S0			
D009	8-719-073-01	DIODE MA111-TX			
		< TRANSISTOR >			
Q001	8-729-402-42	TRANSISTOR	UN5213-TX		
Q002	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		(TRV87/TRV87P)
Q003	8-729-230-72	TRANSISTOR	2SA1362-YG-EL		(TRV87/TRV87P)
		< RESISTOR >			
R002	1-216-833-91	RES-CHIP	10K	5%	1/16W
R003	1-216-833-91	RES-CHIP	10K	5%	1/16W
R004	1-216-833-91	RES-CHIP	10K	5%	1/16W
R005	1-216-833-91	RES-CHIP	10K	5%	1/16W
R006	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R007	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R008	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R009	1-216-849-11	METAL CHIP	220K	5%	1/16W (TRV87/TRV87P)
R010	1-216-833-91	RES-CHIP	10K	5%	1/16W (TRV87/TRV87P)
R011	1-216-853-11	METAL CHIP	470K	5%	1/16W (TRV87/TRV87P)
R012	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R013	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R014	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R015	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87/TRV87P)
R016	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (TRV87/TRV87P)

Ref. No.	Part No.	Description			Remarks
R017	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R018	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R020	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R021	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R022	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R026	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R027	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R034	1-216-838-11	METAL CHIP	27K	5%	1/16W
R036	1-216-838-11	METAL CHIP	27K	5%	1/16W
R043	1-216-864-11	METAL CHIP	0	5%	1/16W
R048	1-216-864-11	METAL CHIP	0	5%	1/16W

< SWITCH >

Ref. No.	Part No.	Description	Remarks
S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)	(TRV87/TRV87P)
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)	
S003	1-771-029-21	SWITCH, TACTILE (PROGRAM AE)	
S004	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)	
S006	1-771-138-61	SWITCH, KEY BOARD (MENU)	
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)	
S008	1-771-138-61	SWITCH, KEY BOARD (END SEARCH)	
S009	1-771-025-41	SWITCH, ROTARY (ENCODER)	
S010	1-771-029-21	SWITCH, TACTILE (BACK LIGHT)	
S011	1-771-138-61	SWITCH, KEY BOARD (TIME)	
S012	1-771-138-61	SWITCH, KEY BOARD (FADER)	
S013	1-771-029-31	SWITCH, TACTILE (FADER)	
S014	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)	

A-7074-151-A DD-134 BOARD, COMPLETE (TR317)
****

A-7074-155-A DD-134 BOARD, COMPLETE (TR517)
****

A-7074-119-A DD-134 BOARD, COMPLETE (TRV17/TRV37/TRV57/TRV57P/TRV67)
****

A-7074-125-A DD-134 BOARD, COMPLETE (TRV87/TRV87P)
****

A-7074-113-A DD-134 BOARD, COMPLETE (TRV47)
****

(Ref.No.;1000 Series)

< CAPACITOR >

Ref. No.	Part No.	Description			Remarks
C301	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C302	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C303	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C304	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C305	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C309	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
C310	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C311	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C312	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C313	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C314	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C315	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C316	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-162-962-11	CERAMIC CHIP	470PF	10%	50V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C318	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-113-991-11	TANTAL. CHIP	33uF	20%	16V
C323	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C325	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C326	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C327	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C328	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C329	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C330	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C332	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C333	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C335	1-162-974-11	CERAMIC CHIP	0.01uF		50V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C336	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C337	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C338	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C339	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C340	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C341	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C342	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C343	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C344	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C345	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C346	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C347	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C348	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C349	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C350	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C351	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C352	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C353	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C354	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C355	1-125-822-11	TANTALUM	10uF	20%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C356	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C358	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C360	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C361	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C362	1-164-346-11	CERAMIC CHIP	1uF		16V (TR517)
C363	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C364	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C366	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C367	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
* CN301	1-580-756-21	PIN, CONNECTOR (SMD) 7P	
CN931	1-691-520-11	CONNECTOR, BOARD TO BOARD 48P	
CN933	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P	(TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< DIODE >	
D301	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D301	8-719-045-87	DIODE MA4Z082WA-(K8).SO	
D302	8-719-421-27	DIODE MA728-(K8).S0	
D304	8-719-073-03	DIODE MA8082-(K8).S0	
D305	8-719-056-89	DIODE MA8120-TX	
D306	8-719-078-02	DIODE 1SS357(T3SONY1)	
D308	8-719-078-02	DIODE 1SS357(T3SONY1)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
D310	8-719-078-02	DIODE 1SS357(T3SONY1)	
D311	8-719-078-02	DIODE 1SS357(T3SONY1)	
D312	8-719-078-02	DIODE 1SS357(T3SONY1)	(TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
D312	8-719-027-76	DIODE 1SS357-TPH3 (TR517)	
D313	8-719-078-02	DIODE 1SS357(T3SONY1)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< FUSE >	
⚠F302	1-576-406-21	FUSE, MICRO (1608) (1.4A)	
⚠F303	1-576-406-21	FUSE, MICRO (1608) (1.4A)	
⚠F304	1-576-406-21	FUSE, MICRO (1608) (1.4A)	
⚠F305	1-576-406-21	FUSE, MICRO (1608) (1.4A)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
⚠F306	1-576-406-21	FUSE, MICRO (1608) (1.4A)	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< FERRITE BEAD >	
FB310	1-500-238-22	FERRITE 0UH	
FB320	1-500-238-22	FERRITE 0UH (TR517)	
FB321	1-500-238-22	FERRITE 0UH	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< IC >	
IC301	8-752-090-20	IC CXA3057R-T6	
		< COIL >	
L301	1-416-670-11	INDUCTOR 33uH	
L302	1-416-669-11	INDUCTOR 22uH	
L303	1-412-056-11	INDUCTOR 4.7uH	
L304	1-416-669-11	INDUCTOR 22uH	
L305	1-416-670-11	INDUCTOR 33uH	
L306	1-416-669-11	INDUCTOR 22uH	
L307	1-412-056-11	INDUCTOR 4.7uH	
L308	1-412-056-11	INDUCTOR 4.7uH	
L309	1-412-056-11	INDUCTOR 4.7uH	
L313	1-414-400-41	INDUCTOR 22uH	
L314	1-412-056-11	INDUCTOR 4.7uH	
L315	1-414-400-41	INDUCTOR 22uH	
L316	1-412-056-11	INDUCTOR 4.7uH	
L317	1-414-400-41	INDUCTOR 22uH	
L318	1-416-669-11	INDUCTOR 22uH	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
L319	1-412-056-11	INDUCTOR 4.7uH	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< TRANSISTOR >	
Q301	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
⚠Q302	8-729-046-77	TRANSISTOR SI4963DY-T1	
Q303	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q304	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q305	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
Q307	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q308	8-729-046-98	TRANSISTOR CPH6702-TL	
Q309	8-729-046-98	TRANSISTOR CPH6702-TL	
Q310	8-729-046-98	TRANSISTOR CPH6702-TL	
Q311	8-729-046-98	TRANSISTOR CPH6702-TL	
Q312	8-729-046-98	TRANSISTOR CPH6702-TL	
Q313	8-729-044-58	TRANSISTOR SI2304DS-T1	
Q316	8-729-046-98	TRANSISTOR CPH6702-TL	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q317	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q318	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q319	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q320	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q321	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q322	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q323	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q325	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q327	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q328	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q329	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q330	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q331	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q332	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q333	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
		< RESISTOR >	
R301	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R302	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R303	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R304	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R305	1-216-837-11	METAL CHIP 22K 5% 1/16W	

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R306	1-216-821-11	METAL CHIP	1K	5%	1/16W
R307	1-216-864-11	METAL CHIP	0	5%	1/16W
R309	1-216-853-11	METAL CHIP	470K	5%	1/16W
R310	1-216-857-11	METAL CHIP	1M	5%	1/16W
R311	1-216-813-11	METAL CHIP	220	5%	1/16W
R312	1-216-839-11	METAL CHIP	33K	5%	1/16W
R313	1-216-150-91	RES-CHIP	10	5%	1/8W
R314	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R315	1-216-837-11	METAL CHIP	22K	5%	1/16W
R316	1-216-821-11	METAL CHIP	1K	5%	1/16W
R317	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R318	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R319	1-216-841-11	METAL CHIP	47K	5%	1/16W
R322	1-216-296-91	SHORT	0		(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R323	1-216-841-11	METAL CHIP	47K	5%	1/16W
R324	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R325	1-216-841-11	METAL CHIP	47K	5%	1/16W
R326	1-216-837-11	METAL CHIP	22K	5%	1/16W
R327	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R328	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R329	1-216-845-11	METAL CHIP	100K	5%	1/16W
R330	1-216-864-11	METAL CHIP	0	5%	1/16W
R331	1-216-864-11	METAL CHIP	0	5%	1/16W
R332	1-218-877-11	METAL CHIP	18K	0.5%	1/16W
R333	1-216-837-11	METAL CHIP	22K	5%	1/16W
R335	1-218-891-11	METAL CHIP	68K	0.5%	1/16W
R336	1-218-891-11	METAL CHIP	68K	0.5%	1/16W (TRV87/TRV87P)
R336	1-218-895-11	METAL CHIP	100K	0.5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R337	1-218-879-11	METAL CHIP	22K	0.5%	1/16W (TRV87/TRV87P)
R337	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R338	1-218-903-11	METAL CHIP	220K	0.5%	1/16W
R339	1-216-845-11	METAL CHIP	100K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R340	1-216-841-11	METAL CHIP	47K	5%	1/16W
R341	1-216-845-11	METAL CHIP	100K	5%	1/16W
R342	1-216-845-11	METAL CHIP	100K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R343	1-216-837-11	METAL CHIP	22K	5%	1/16W
R344	1-216-864-11	METAL CHIP	0	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R345	1-218-903-11	METAL CHIP	220K	0.5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R346	1-218-891-11	METAL CHIP	68K	0.5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R347	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
R348	1-218-887-11	METAL CHIP	47K	0.5%	1/16W
R349	1-218-877-11	METAL CHIP	18K	0.5%	1/16W (TRV87/TRV87P)
R349	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R354	1-216-833-91	RES-CHIP	10K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R357	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R358	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
		< TRANSFORMER >			
⚠T301	1-435-252-21	TRANSFORMER, DC-DC CONVERTER			

Ref. No.	Part No.	Description			Remarks
	A-7074-162-A	EJ-29 BOARD, COMPLETE (TR317/TR517) ************************************			(Ref.No.;1000 Series)
		< CONNECTOR >			
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P			
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P			
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P			
		< DIODE >			
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D256	8-719-073-01	DIODE MA111-TX			
D257	8-719-073-01	DIODE MA111-TX			
		< FERRITE BEAD >			
FB251	1-500-238-22	FERRITE	0UH		
FB252	1-500-238-22	FERRITE	0UH		
FB253	1-500-238-22	FERRITE	0UH		
		< JACK >			
J251	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)			
		< RESISTOR >			
R251	1-216-821-11	METAL CHIP	1K	5%	1/16W
R252	1-216-821-11	METAL CHIP	1K	5%	1/16W
R253	1-216-821-11	METAL CHIP	1K	5%	1/16W
R254	1-216-821-11	METAL CHIP	1K	5%	1/16W
R255	1-216-821-11	METAL CHIP	1K	5%	1/16W
R256	1-216-821-11	METAL CHIP	1K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-029-00	METAL CHIP	150	5%	1/10W
		< SWITCH >			
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT⏏)			

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
	A-7074-149-A	EJ-30 BOARD, COMPLETE	
		(TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)	
		**************************************	
			(Ref.No.;1000 Series)
		< CONNECTOR >	
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P	
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P	
		< DIODE >	
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D256	8-719-073-01	DIODE MA111-TX	
D257	8-719-073-01	DIODE MA111-TX	
		< FERRITE BEAD >	
FB251	1-414-228-11	INDUCTOR CHIP 0UH	
FB252	1-414-228-11	INDUCTOR CHIP 0UH	
FB253	1-414-228-11	INDUCTOR CHIP 0UH	
		< JACK >	
J251	1-565-276-31	JACK, ULTRA SMALL 1P (LANC)	
		< RESISTOR >	
R251	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R252	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R253	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R254	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R255	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R256	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R257	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R258	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R259	1-216-029-00	METAL CHIP 150 5% 1/10W	
		< SWITCH >	
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT)	
		FP-249 MOUNT (Not supplied)	
		*************************	
			(Ref.No.;1000 Series)
	3-965-552-01	HOLDER (T), SENSOR	
		< HOLE ELEMENT >	
H001	8-719-061-28	DIODE HW-105C-FT-V (S REEL)	
H002	8-719-061-28	DIODE HW-105C-FT-V (T REEL)	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE TOP)	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)	
		(Hi8 MP,ME/MP,REC PROOF)	

Ref. No.	Part No.	Description	Remarks
	1-658-213-11	FP-355 FLEXIBLE BOARD	
		********************	
			(Ref.No.;1000 Series)
		< DIODE >	
D001	8-719-988-42	DIODE GL453	
	1-658-214-11	FP-356 FLEXIBLE BOARD	
		********************	
			(Ref.No.;1000 Series)
	3-965-551-01	HOLDER (S), SENSOR	
		< TRANSISTOR >	
Q002	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE END)	
	A-7074-192-A	LB-62 BOARD, COMPLETE (TR517)	
		*****************************	
			(Ref.No.;1000 Series)
		< CAPACITOR >	
C4601	1-113-682-11	TANTAL. CHIP 33uF 20% 10V	
C4602	1-127-760-91	CERAMIC CHIP 4.7uF 10% 6.3V	
C4603	1-115-464-91	CERAMIC CHIP 0.0022uF 10% 630V	
C4604	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		< CONNECTOR >	
CN4601	1-764-516-21	CONNECTOR, FFC/FPC (ZIF) 6P	
		< IC >	
IC4601	8-759-485-79	IC TC7SET08FU(TE85R)	
		< COIL >	
L4601	1-412-031-11	INDUCTOR CHIP 47uH	
L4602	1-469-525-91	INDUCTOR 10uH	
		< FLUORESCENT INDICATOR >	
⚠ND4601	1-517-933-11	FLUORESCENT TUBE (0.44)	
		< TRANSISTOR >	
Q4601	8-729-039-24	TRANSISTOR FX216-TL1	
		< RESISTOR >	
R4601	1-216-808-11	METAL CHIP 82 5% 1/16W	
R4604	1-216-853-11	METAL CHIP 470K 5% 1/16W	
		< TRANSFORMER >	
⚠T4601	1-435-225-21	TRANSFORMER, INVERTER	

Note :	Note :
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Ref. No.	Part No.	Description			Remarks
	A-7074-153-A	MA-374 BOARD, COMPLETE (TR317/TR517)			
		**************************************			
					(Ref.No.;1000 Series)
		< CAPACITOR >			
C322	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V
C325	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C330	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C333	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C336	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C341	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C342	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C353	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C354	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C356	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C357	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C358	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C359	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C360	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
		< CONNECTOR >			
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P			
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P			
		< DIODE >			
D302	8-719-060-65	DIODE DAC3810			
D303	8-719-067-44	DIODE CL-310IRS-X-TU			
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)			
D305	8-719-073-01	DIODE MA111-TX			
D323	8-719-073-01	DIODE MA111-TX			
		< FUSE >			
⚠F301	1-533-874-11	FUSE, MICRO (0.2A)			
		< IC >			
IC322	8-759-339-63	IC NJM2118V-TE2			
		< JACK >			
J321	1-568-027-11	JACK, SMALL TYPE (MIC)			
		< COIL >			
L301	1-216-295-91	SHORT	0 (Note)		
		< TRANSISTOR >			
Q301	8-729-402-42	TRANSISTOR	UN5213-TX		
Q302	8-729-422-51	TRANSISTOR	UN5110-QRS-TX		
Q304	8-729-920-85	TRANSISTOR	2SD1664-T100-QR		
Q321	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q322	8-729-420-24	TRANSISTOR	2SB1218A-QRS-TX		
		< RESISTOR >			
R304	1-216-864-11	METAL CHIP	0	5%	1/16W
R305	1-216-817-11	METAL CHIP	470	5%	1/16W
R307	1-216-815-11	METAL CHIP	330	5%	1/16W
R308	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R309	1-216-302-00	METAL CHIP	2.7	5%	1/10W

Note : Resistor is mounted to the location where L301 is printed.

Ref. No.	Part No.	Description			Remarks
R310	1-216-864-11	METAL CHIP	0	5%	1/16W
R312	1-216-824-11	METAL CHIP	1.8K	5%	1/16W
R313	1-216-864-11	METAL CHIP	0	5%	1/16W
R322	1-216-864-11	METAL CHIP	0	5%	1/16W
R323	1-216-864-11	METAL CHIP	0	5%	1/16W
R327	1-216-864-11	METAL CHIP	0	5%	1/16W
R328	1-216-817-11	METAL CHIP	470	5%	1/16W
R332	1-216-841-11	METAL CHIP	47K	5%	1/16W
R333	1-216-841-11	METAL CHIP	47K	5%	1/16W
R335	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R340	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R341	1-216-834-11	METAL CHIP	12K	5%	1/16W
R344	1-216-834-11	METAL CHIP	12K	5%	1/16W
R345	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R346	1-216-838-11	METAL CHIP	27K	5%	1/16W
R347	1-216-838-11	METAL CHIP	27K	5%	1/16W
R348	1-216-837-11	METAL CHIP	22K	5%	1/16W
R349	1-216-837-11	METAL CHIP	22K	5%	1/16W
R358	1-216-803-11	METAL CHIP	33	5%	1/16W
		< SWITCH >			
S302	1-771-331-51	SWITCH, PUSH (1 KEY) (VTR/PLAYER)			
S303	1-771-331-71	SWITCH, PUSH (1 KEY) (CAMERA)			

	A-7074-127-A	MA-375 BOARD, COMPLETE (TRV87/TRV87P)			
		**************************************			
	A-7074-121-A	MA-375 BOARD, COMPLETE			
					(TRV57/TRV57P/TRV67)
		**			
	A-7074-228-A	MA-375 BOARD, COMPLETE (TRV17/TRV37)			
		************************************			
	A-7074-191-A	MA-375 BOARD, COMPLETE (TRV47)			
		******************************			
					(Ref.No.;1000 Series)
		< CAPACITOR >			
C301	1-107-686-11	TANTAL. CHIP	4.7uF	20%	16V (TRV87/TRV87P)
C302	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C303	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C304	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C305	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C322	1-163-809-11	CERAMIC CHIP	0.047uF	10%	25V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C323	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C325	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C326	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C327	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TRV87/TRV87P)

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
C328	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87/TRV87P)
C329	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C330	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C331	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV87/TRV87P)
C332	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV87/TRV87P)
C333	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C334	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C335	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C336	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C337	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C338	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87/TRV87P)
C340	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87/TRV87P)
C341	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C342	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C343	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87/TRV87P)
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87/TRV87P)
C345	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87/TRV87P)
C346	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87/TRV87P)
C347	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87/TRV87P)
C348	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87/TRV87P)
C349	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87/TRV87P)
C350	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87/TRV87P)
C351	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87/TRV87P)
C352	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87/TRV87P)
C353	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C354	1-104-851-11	TANTAL. CHIP 10uF 20% 4V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C355	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87/TRV87P)
C356	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C357	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C358	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C359	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C360	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
C362	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87/TRV87P)
C363	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87/TRV87P)
C364	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87/TRV87P)
		< CONNECTOR >	
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
* CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	(TRV87/TRV87P)
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P	
		< DIODE >	
D301	8-719-078-23	DIODE DCR2815	(TRV87/TRV87P)
D302	8-719-060-65	DIODE DAC3810	
D303	8-719-067-44	DIODE CL-310IRS-X-TU	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)	
D305	8-719-073-01	DIODE MA111-TX	
D322	8-719-073-03	DIODE MA8082-(K8).S0	(TRV87/TRV87P)
D323	8-719-073-01	DIODE MA111-TX	
		< FUSE >	
⚠F301	1-533-874-11	FUSE, MICRO (0.2A)	
		< IC >	
IC301	8-749-012-83	IC PNA4S13M01S0	(TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
IC321	8-759-643-77	IC BH7870KV-E2	(TRV87/TRV87P)
IC322	8-759-339-63	IC NJM2118V-TE2	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
		< JACK >	
J321	1-568-027-11	JACK, SMALL TYPE (MIC)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
J321	1-691-737-11	JACK SMALL TYPE (MIC)	(TRV87/TRV87P)
		< COIL >	
L301	1-414-754-11	INDUCTOR 10uH	(TRV87/TRV87P)
L301	1-216-295-91	SHORT 0 (Note)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
		< TRANSISTOR >	
Q301	8-729-402-42	TRANSISTOR UN5213-TX	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
Q302	8-729-422-51	TRANSISTOR UN5110-QRS-TX	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
Q302	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV87/TRV87P)
Q303	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q	(TRV87/TRV87P)
Q304	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	

Note : Resistor is mounted to the location where L301 is printed.

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

MA-375

Ref. No.	Part No.	Description	Remarks
Q321	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
		< RESISTOR >	
R301	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TRV87/TRV87P)
R302	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R303	1-216-810-11	METAL CHIP 120 5% 1/16W	(TRV87/TRV87P)
R304	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R305	1-216-817-11	METAL CHIP 470 5% 1/16W	
R306	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R307	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R308	1-216-309-00	METAL CHIP 5.6 5% 1/10W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R308	1-216-311-00	METAL CHIP 6.8 5% 1/10W	(TRV87/TRV87P)
R309	1-216-302-00	METAL CHIP 2.7 5% 1/10W	
R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R313	1-216-864-11	METAL CHIP 0 5% 1/16W	
R314	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R315	1-216-847-11	METAL CHIP 150K 5% 1/16W	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R321	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R322	1-216-864-11	METAL CHIP 0 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
R324	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R325	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87/TRV87P)
R326	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87/TRV87P)
R327	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R328	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R329	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV87/TRV87P)
R331	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV87/TRV87P)
R332	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R333	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R334	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87/TRV87P)
R335	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV87/TRV87P)
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87/TRV87P)
R338	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV87/TRV87P)
R339	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV87/TRV87P)
R340	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R341	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R342	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV87/TRV87P)
R343	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV87/TRV87P)
R344	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R345	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R346	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R347	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R350	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87/TRV87P)
R351	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87/TRV87P)
R352	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R353	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87/TRV87P)
R354	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87/TRV87P)
R355	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87/TRV87P)
R357	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87/TRV87P)
R358	1-216-803-11	METAL CHIP 33 5% 1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R359	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TRV87/TRV87P)
R360	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87/TRV87P)
R361	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87/TRV87P)
R362	1-216-818-11	METAL CHIP 560 5% 1/16W	(TRV87/TRV87P)
R363	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV87/TRV87P)
R364	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
R365	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87/TRV87P)
		< SWITCH >	
S301	1-692-605-11	SWITCH, SLIDE	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
S302	1-771-331-51	SWITCH, PUSH (1 KEY)(VTR/PLAYER)	
S303	1-771-331-71	SWITCH, PUSH (1 KEY)(CAMERA)	

Ref. No.	Part No.	Description			Remarks
	A-7074-229-A	PD-117 BOARD, COMPLETE (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P) ** (Ref.No.;10000 Series)			
		< CAPACITOR >			
C5501	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C5503	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5504	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5505	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5506	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5507	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5508	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5509	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C5510	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C5512	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5514	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C5515	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C5516	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C5517	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5518	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5519	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5520	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C5521	1-107-682-11	CERAMIC CHIP	1uF 1		16V
C5522	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5523	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5524	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5527	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5528	1-135-177-21	TANTALUM CHIP	1uF	20%	20V
C5529	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C5530	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5531	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5602	1-125-822-11	TANTAL CHIP	10uF	10%	10V
C5603	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5604	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5605	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5606	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
⚠C5607	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5608	1-125-822-11	TANTAL. CHIP	10uF	20%	10V
C5704	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN5501	1-573-364-11	CONNECTOR, FFC/FPC 24P			
CN5501	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P			
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN5604	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P			
CN5701	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P			
CN5702	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P			
CN5703	1-573-346-21	CONNECTOR, FFC/FPC 6P			
CN5703	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P			
* CN5703	1-778-154-21	CONNECTOR, FFC/FPC (ZIF) 6P			
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			

Ref. No.	Part No.	Description			Remarks
CN5705	1-794-050-21	CONNECTOR, FFC/FPC (ZIF) 26P			
		< DIODE >			
D5502	8-713-102-80	DIODE	1T369-01-T8A		
D5503	8-719-073-01	DIODE	MA111-(K8).S0		
D5601	8-719-073-01	DIODE	MA111-(K8).S0		
D5602	8-719-062-44	DIODE	PG1112H-TR		
		< FERRITE BEAD >			
FB5502	1-500-329-11	INDUCTOR CHIP	0UH		
FB5503	1-500-329-11	INDUCTOR CHIP	0UH		
		< IC >			
IC5501	8-759-591-94	IC	RB5P0030M1		
IC5502	8-759-594-11	IC	LZ9FF404		
IC5503	8-759-478-92	IC	TC7SET04FU(TE85R)		
IC5601	8-759-564-49	IC	TC7W53FU(TE12R)		
IC5602	8-759-075-70	IC	TA75S393F-TE85R (STARTER)		
IC5701	8-759-573-02	IC	BU9735K-E2		
		< COIL >			
L5501	1-469-525-91	INDUCTOR	10uH		
L5504	1-469-525-91	INDUCTOR	10uH		
L5505	1-412-956-21	INDUCTOR	27uH		
L5601	1-419-387-21	INDUCTOR	100uH		
		< TRANSISTOR >			
Q5501	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
Q5502	8-729-041-23	TRANSISTOR	MGSF1P02LT1		
Q5503	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)		
Q5504	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)		
Q5505	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
Q5506	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
Q5601	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5602	8-729-039-43	TRANSISTOR	FP216-TL		
Q5603	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5604	8-729-042-58	TRANSISTOR	RN2102F(TPL3)		
		< RESISTOR >			
R5501	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5503	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
R5504	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5505	1-216-835-11	METAL CHIP	15K	5%	1/16W
R5506	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R5507	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5508	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5509	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5510	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5511	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5513	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5515	1-216-864-11	METAL CHIP	0	5%	1/16W
R5516	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5519	1-216-864-11	METAL CHIP	0	5%	1/16W

Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Note :
Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R5520	1-216-864-11	METAL CHIP	0	5%	1/16W
R5521	1-216-864-11	METAL CHIP	0	5%	1/16W
R5523	1-216-809-11	METAL CHIP	100	5%	1/16W
R5524	1-216-809-11	METAL CHIP	100	5%	1/16W
R5525	1-216-809-11	METAL CHIP	100	5%	1/16W
R5551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5553	1-216-821-11	METAL CHIP	1K	5%	1/16W
R5557	1-216-864-11	METAL CHIP	0	5%	1/16W
R5560	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5562	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5563	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5564	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5565	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5569	1-216-848-11	METAL CHIP	180K	5%	1/16W
R5608	1-216-864-11	METAL CHIP	0	5%	1/16W
R5609	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5610	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5612	1-216-834-11	METAL CHIP	12K	5%	1/16W
R5613	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5614	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5616	1-216-810-11	METAL CHIP	120	5%	1/16W
R5617	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5618	1-216-817-11	METAL CHIP	470	5%	1/16W
R5702	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R5704	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5706	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R5707	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R5708	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R5711	1-216-809-11	METAL CHIP	100	5%	1/16W
R5712	1-216-855-11	METAL CHIP	680K	5%	1/16W
R5714	1-216-809-11	METAL CHIP	100	5%	1/16W
		< SWITCH >			
S5701	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT +)			
S5702	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT -)			
S5703	1-692-088-41	SWITCH, TACTILE (VOLUME +)			
S5704	1-692-088-41	SWITCH, TACTILE (VOLUME -)			
		< TRANSFORMER >			
⚠T5601	1-435-226-11	TRANSFORMER, INVERTER			

Ref. No.	Part No.	Description			Remarks
	A-7074-158-A	PJ-99 BOARD, COMPLETE(TR317/TR517) *********************************** (Ref.No.;1000 Series)			
		< CAPACITOR >			
C101	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C103	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P			
		< DIODE >			
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D105	8-719-988-61	DIODE 1SS355TE-17			
		< JACK >			
J101	1-537-747-41	TERMINAL BOARD			
		< COIL >			
L101	1-216-295-91	SHORT	0 (Note)		
L102	1-412-963-11	INDUCTOR	100uH		
		< TRANSISTOR >			
Q101	8-729-101-07	TRANSISTOR	2SB798-T1-DLDK		
Q102	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
		< RESISTOR >			
R102	1-216-138-00	METAL CHIP	3.3	5%	1/8W
R103	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R104	1-216-820-11	METAL CHIP	820	5%	1/16W
R105	1-216-836-11	METAL CHIP	18K	5%	1/16W
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W
		< VARISTOR >			
VDR101	1-801-862-11	VARISTOR, CHIP			
VDR102	1-801-862-11	VARISTOR, CHIP			

Ref. No.	Part No.	Description			Remarks
	A-7074-122-A	PJ-100 BOARD, COMPLETE (TRV67) *******************************			
	A-7074-128-A	PJ-100 BOARD, COMPLETE (TRV87/TRV87P) ***************************************			
	A-7074-115-A	PJ-100 BOARD, COMPLETE (TRV17/TRV37/TRV47/TRV57/TRV57P) *** (Ref.No.;1000 Series)			
		< CAPACITOR >			
C101	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V
C103	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (TRV17/TRV37/TRV47/TRV57/TRV57P)
		< CONNECTOR >			
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P			
		< DIODE >			
D101	8-719-045-87	DIODE MA4Z082WA-(K8).SO			(TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
D102	8-719-073-03	DIODE MA8082-(K8).S0			(TRV67/TRV87/TRV87P)
D103	8-719-062-16	DIODE 01ZA8.2(TPL3)			(TRV67/TRV87/TRV87P)
D103	8-719-045-87	DIODE MA4Z082WA-(K8).SO			(TRV67/TRV87/TRV87P)
D104	8-719-062-16	DIODE 01ZA8.2(TPL3)			(TRV67/TRV87/TRV87P)
D104	8-719-045-87	DIODE MA4Z082WA-(K8).SO			(TRV67/TRV87/TRV87P)
D105	8-719-988-61	DIODE 1SS355TE-17			

Note : Resistor is mounted to the location where L101 is printed.

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
		< JACK >	
J101	1-537-747-41	TERMINAL BOARD	(TRV17/TRV37/TRV47/TRV57/TRV57P)
J101	1-537-747-21	TERMINAL BOARD (TRV87/TRV87P)	
J101	1-694-643-11	TERMINAL BOARD (TRV67)	
		< COIL >	
L101	1-216-295-91	SHORT 0 (Note)	
L102	1-216-295-91	SHORT 0 (Note)	(TRV67/TRV87/TRV87P)
L102	1-412-963-11	INDUCTOR 100uH	(TRV17/TRV37/TRV47/TRV57/TRV57P)
L103	1-216-295-91	SHORT 0 (Note)	(TRV87/TRV87P)
L104	1-216-295-91	SHORT 0 (Note)	(TRV87/TRV87P)
		< TRANSISTOR >	
Q101	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q102	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
		< RESISTOR >	
R102	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R103	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R104	1-216-820-11	METAL CHIP 820 5% 1/16W	
R105	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV67/TRV87/TRV87P)
R109	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		< VARISTOR >	
VDR101	1-801-862-11	VARISTOR, CHIP	
VDR102	1-801-862-11	VARISTOR, CHIP	(TRV87/TRV87P)

Ref. No.	Part No.	Description	Remarks
	A-7074-123-A	SE-101 BOARD, COMPLETE	(TRV57/TRV57P/TRV67)
		**************************************	
	A-7074-129-A	SE-101 BOARD, COMPLETE (TRV87/TRV87P)	
		************************************	
	A-7074-116-A	SE-101 BOARD, COMPLETE	(TRV17/TRV37/TRV47)
		**************************************	
			(Ref.No.;1000 Series)
		< CAPACITOR >	
C451	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C452	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C453	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C454	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C455	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C456	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C457	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C458	1-110-666-11	ELECT CHIP 22uF 20% 6.3V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C459	1-164-343-11	CERAMIC CHIP 0.056uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C460	1-110-666-11	ELECT CHIP 22uF 20% 6.3V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C462	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C463	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
C464	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< CONNECTOR >	
CN451	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P	
		< IC >	
IC451	8-759-489-19	IC uPC6756GR-8JG-E2	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< JACK >	
J451	1-695-514-11	JACK (SMALL TYPE) 1P (HEADPHONE MONO)	(TRV17/TRV37/TRV17/TRV37/TRV47/ TRV57/TRV57P/TRV67)
J451	1-695-514-21	JACK (SMALL TYPE) 1P(HEADPHONE,STEREO)	(TRV87/TRV87P)
		< COIL >	
L451	1-414-754-11	INDUCTOR 10uH	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
L452	1-216-295-91	SHORT 0 (Note)	(TRV87/TRV87P)
L453	1-216-295-91	SHORT 0 (Note)	
		< RESISTOR >	
R451	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R452	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R453	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R454	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R455	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R456	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R457	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R458	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R460	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TRV57/TRV57P/TRV67/TRV87/TRV87P)
R461	1-216-864-11	METAL CHIP 0 5% 1/16W	

Note : Resistors are mounted to the location where L101,L102, L103, L104 are printed.

Note : Resistors are mounted to the location where L452,L453 are printed.

SE-101

Ref. No.	Part No.	Description			Remarks
		< SENSOR >			
SE451	1-418-252-11	SENSOR, ANGULAR VELOCITY			(TRV57/TRV57P/TRV67/TRV87/TRV87P)
SE452	1-418-252-21	SENSOR, ANGULAR VELOCITY			(TRV57/TRV57P/TRV67/TRV87/TRV87P)
		< VARISTOR >			
VDR451	1-801-862-11	VARISTOR, CHIP (TRV87/TRV87P)			
VDR452	1-801-862-11	VARISTOR, CHIP			

VC-234

Ref. No.	Part No.	Description			Remarks
	A-7094-702-A	VC-234 BOARD, COMPLETE (SERVICE)(TR317)			
		**			
	A-7094-703-A	VC-234 BOARD, COMPLETE (SERVICE)(TR517)			
		**			
	A-7094-728-A	VC-234 BOARD, COMPLETE(SERVICE)			(TRV17/TRV37)
		**			
	A-7094-714-A	VC-234 BOARD, COMPLETE (SERVICE)(TRV47)			
		**			
	A-7094-711-A	VC-234 BOARD, COMPLETE (SERVICE)			(TRV87/TRV87P)
		**			
	A-7094-712-A	VC-234 BOARD, COMPLETE (SERVICE)(TRV67)			
		**			
	A-7094-713-A	VC-234 BOARD, COMPLETE (SERVICE)			(TRV57/TRV57P)
		**			
					(Ref.No.;1000 Series)
		< CAPACITOR >			
C101	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C102	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C105	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C105	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V
C106	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C107	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C108	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C111	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C112	1-162-926-11	CERAMIC CHIP	82PF	5%	50V
C113	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C114	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C115	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C117	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C118	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C119	1-104-851-11	TANTAL. CHIP	10uF	20%	10V
C119	1-125-822-11	TANTALUM	10uF	20%	10V
C121	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C123	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C125	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C128	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C130	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C131	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C133	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C134	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C135	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C136	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C137	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C138	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C142	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C146	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C202	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C203	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C206	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C207	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C210	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C211	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V
C211	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C212	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C213	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C217	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C218	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C219	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C220	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C221	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C222	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C223	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C224	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C225	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C226	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C227	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C228	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C231	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C232	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C233	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C234	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C237	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C239	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C239	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C241	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C243	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C244	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C245	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C246	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C247	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C249	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C250	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
					(TR317/TR517/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C253	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C254	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
					(TRV87/TRV87P)
C255	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
					(TRV87/TRV87P)
C256	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C257	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
					(TRV87/TRV87P)
C258	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
					(TRV87/TRV87P)
C259	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C260	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V

Ref. No.	Part No.	Description			Remarks
C263	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C264	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C265	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C266	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C291	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C292	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C293	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C401	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C402	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C403	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C404	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C405	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C406	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C407	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C408	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V
C409	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C410	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C411	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C412	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C413	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C414	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C417	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C418	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C419	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C420	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C421	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C424	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C425	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C427	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C428	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C429	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C430	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C431	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C435	1-164-315-11	CERAMIC CHIP	470PF		50V
C436	1-164-315-11	CERAMIC CHIP	470PF		50V
C501	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C502	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C503	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C504	1-115-156-11	CERAMIC CHIP	1uF	0%	10V
C505	1-115-156-11	CERAMIC CHIP	1uF	0%	10V
C506	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C507	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C508	1-115-156-11	CERAMIC CHIP	1uF	0%	10V
C509	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C511	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V
C512	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C514	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C515	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C516	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C517	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V

Ref. No.	Part No.	Description			Remarks
C518	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C519	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C520	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C521	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C522	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C523	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C524	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C525	1-115-156-11	CERAMIC CHIP	1uF		10V (TR317/TR517/TRV17/TRV37/TRV47)
C526	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TR317/TR517/TRV17/TRV37/TRV47)
C527	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C552	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C554	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C556	1-125-822-11	TANTAL. CHIP	10uF	20%	10V
C559	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C560	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C561	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C562	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V
C563	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V
C564	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C565	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C566	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C568	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C569	1-115-156-11	CERAMIC CHIP	1uF		10V
C570	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C571	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C572	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C573	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C641	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C644	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C645	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C646	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C647	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (TRV87/TRV87P)
C648	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C649	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C650	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV67/TRV87/TRV87P)
C651	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C652	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V (TRV67/TRV87/TRV87P)
C653	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C654	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C655	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C656	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C657	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V (TRV87/TRV87P)
C658	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C659	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V (TRV87/TRV87P)
C660	1-164-217-11	CERAMIC CHIP	150PF	5%	50V (TRV87/TRV87P)
C661	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (TRV87/TRV87P)
C663	1-162-927-11	CERAMIC CHIP	100PF	5%	50V (TRV87/TRV87P)
C664	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C665	1-162-919-11	CERAMIC CHIP	22PF	5%	50V (TRV87/TRV87P)
C667	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V

VC-234

Ref. No.	Part No.	Description			Remarks
C668	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C669	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V (TRV67/TRV87/TRV87P)
C671	1-126-246-11	ELECT CHIP	220uF	20%	4V
C672	1-126-246-11	ELECT CHIP	220uF	20%	4V (TRV67/TRV87/TRV87P)
C673	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV67/TRV87/TRV87P)
C701	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C702	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C705	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C706	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C708	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C709	1-110-569-11	TANTAL. CHIP	47uF	20%	4V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C710	1-110-569-11	TANTAL. CHIP	47uF	20%	4V (TRV87/TRV87P)
C711	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C712	1-104-851-11	TANTAL. CHIP	10uF	20%	4V (TRV87/TRV87P)
C713	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C714	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C715	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C716	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C717	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV87/TRV87P)
C718	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C719	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV87/TRV87P)
C720	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C721	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C722	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C723	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C724	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C725	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C726	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV87/TRV87P)
C727	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C728	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C729	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C730	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C731	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C732	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C733	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C734	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C735	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C736	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV87/TRV87P)
C737	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C738	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C739	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V (TRV87/TRV87P)
C740	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C741	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C742	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C743	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TRV87/TRV87P)
C744	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C745	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C746	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C747	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C751	1-104-851-11	TANTAL. CHIP	10uF	20%	4V (TRV87/TRV87P)
C752	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TRV87/TRV87P)
C753	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C754	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TRV87/TRV87P)
C755	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TRV87/TRV87P)
C756	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C757	1-135-177-21	TANTALUM CHIP	1uF	20%	20V (TRV87/TRV87P)
C758	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C759	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C760	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V (TRV87/TRV87P)
C761	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C762	1-164-668-11	CERAMIC CHIP	510PF	5%	50V (TRV87/TRV87P)
C763	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C764	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TRV87/TRV87P)
C765	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV87/TRV87P)
C766	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C767	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)
C768	1-162-909-11	CERAMIC CHIP	4PF	0.25PF	50V (TRV87/TRV87P)
C769	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TRV87/TRV87P)
C770	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TRV87/TRV87P)
C771	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (TRV87/TRV87P)
C772	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C773	1-162-922-11	CERAMIC CHIP	39PF	5%	50V (TRV87/TRV87P)
C774	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TRV87/TRV87P)
C775	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TRV87/TRV87P)

Ref. No.	Part No.	Description	Remarks
C777	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V (TRV87/TRV87P)
C778	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V (TRV87/TRV87P)
C781	1-104-847-11	TANTAL. CHIP 22uF 20%	4V (TRV87/TRV87P)
C801	1-115-156-11	CERAMIC CHIP 1uF	10V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C802	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C803	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C804	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C805	1-162-638-11	CERAMIC CHIP 1uF	16V
C806	1-119-749-11	TANTAL. CHIP 33uF 20%	4V
C807	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C809	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C810	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C811	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C813	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C814	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C815	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C817	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C818	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C819	1-164-227-11	CERAMIC CHIP 0.022uF 10%	25V
C820	1-162-969-11	CERAMIC CHIP 0.0068uF 10%	25V
C821	1-162-919-11	CERAMIC CHIP 22PF 5%	50V
C822	1-162-917-11	CERAMIC CHIP 15PF 5%	50V
C823	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C824	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C825	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C826	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C901	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C902	1-125-837-91	CERAMIC CHIP 1uF 10%	6.3V
C903	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C904	1-162-915-11	CERAMIC CHIP 10PF 0.5PF	50V
C907	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C908	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C909	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C910	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C911	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C912	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C913	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V
C914	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C915	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C971	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C972	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
C973	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C974	1-164-156-11	CERAMIC CHIP 0.1uF	25V
		< CONNECTOR >	
CN101	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN501	1-779-331-11	CONNECTOR, FFC/FPC 14P	
CN551	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P	
CN971	1-766-352-21	CONNECTOR, FFC/FPC 22P	
CN972	1-766-350-21	CONNECTOR, FFC/FPC 20P	
CN973	1-766-340-21	CONNECTOR, FFC/FPC 10P	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
CN974	1-766-644-21	CONNECTOR, FFC/FPC 8P	
CN975	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P	
CN976	1-766-340-21	CONNECTOR, FFC/FPC 10P	
CN977	1-766-336-21	CONNECTOR, FFC/FPC 6P	(TRV87/TRV87P)
CN978	1-766-342-21	CONNECTOR, FFC/FPC 12P	
CN979	1-766-345-21	CONNECTOR, FFC/FPC 15P	
CN980	1-766-346-21	CONNECTOR, FFC/FPC 16P	
CN981	1-691-542-21	CONNECTOR, BOARD TO BOARD48P	
CN982	1-766-346-21	CONNECTOR, FFC/FPC 16P	
		< DIODE >	
D201	8-719-055-86	DIODE KV1470TL1-3	
D202	8-719-055-86	DIODE KV1470TL1-3	
D203	8-719-027-76	DIODE 1SS357-TPH3	(TRV87/TRV87P)
D401	8-719-075-12	DIODE MA3XD21001S0	
D501	8-713-103-84	DIODE 1T379-01-T8A	
D502	8-719-073-01	DIODE MA111-TX	(TR317/TR517/TRV17/TRV37/TRV47)
D551	8-719-073-01	DIODE MA111-(K8).S0	
D801	8-719-073-01	DIODE MA111-(K8).S0	
D802	8-719-073-01	DIODE MA111-(K8).S0	
D803	8-719-073-01	DIODE MA111-(K8).S0	
D804	8-719-073-01	DIODE MA111-(K8).S0	
D971	8-719-073-03	DIODE MA8082-(K8).S0	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
D972	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
D973	8-719-073-03	DIODE MA8082-(K8).S0	(TRV87/TRV87P)
		< FERRITE BEAD >	
FB101	1-414-228-11	INDUCTOR CHIP 0UH	
FB102	1-414-228-11	INDUCTOR CHIP 0UH	
FB201	1-500-238-22	FERRITE 0UH	
FB202	1-500-238-22	FERRITE 0UH	(TRV87/TRV87P)
FB203	1-500-238-22	FERRITE 0UH	
FB204	1-500-238-22	FERRITE 0UH	
FB205	1-500-238-22	FERRITE 0UH	
FB206	1-500-238-22	FERRITE 0UH	(TRV87/TRV87P)
FB207	1-500-238-22	FERRITE 0UH	
FB291	1-500-238-22	FERRITE 0UH	
FB501	1-500-238-22	FERRITE 0UH	
FB502	1-216-864-11	METAL CHIP 0 5%	1/16W (Note)
FB503	1-500-284-21	INDUCTOR CHIP 0UH	
FB504	1-500-238-22	FERRITE 0UH	
FB505	1-216-864-11	METAL CHIP 0 5%	1/16W (Note)
FB506	1-500-238-22	FERRITE 0UH	(TR317/TR517/TRV17/TRV37/TRV47)
FB641	1-500-238-22	FERRITE 0UH	
FB801	1-500-238-22	FERRITE 0UH	
FB901	1-500-238-22	FERRITE 0UH	

Note : Resistors are mounted to the location where FB502,FB505 are printed.

Ref. No.	Part No.	Description	Remarks
		< IC >	
IC101	8-752-093-69	IC CXA3265R-T4	
IC201	6-700-453-01	IC HG76C012FLV	
IC202	8-759-579-44	IC MB90097PFV-G-118-BND-ER	(TRV87/TRV87P)
IC202	8-759-647-02	IC BU2995-07FV-E2	(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
IC203	8-752-403-45	IC CXD1450R-T6	(TRV87/TRV87P)
IC204	8-759-058-58	IC TC7S04FU(TE85R)	(TRV87/TRV87P)
IC205	8-759-058-60	IC TC7SU04FU(TE85R)	
IC291	8-759-169-02	IC MB88344BPFV-G-BND-ER	
IC401	8-759-640-85	IC CXA8096R-TBM	
IC501	8-752-386-72	IC CXD2444R-T4	
IC502	8-759-638-66	IC AD80013JSTRL	
IC551	8-759-637-96	IC uPD16877MA-6A5-E2	
IC552	8-759-444-87	IC NJM324V(TE2)	
IC641	8-759-599-37	IC AN2225FHQ-EB	
IC701	8-752-093-72	IC CXA3284R-T6	(TRV87/TRV87P)
IC701	8-752-093-74	IC CXA3285R-T6	(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
IC751	8-759-498-52	IC LA9511W-TBM	(TRV87/TRV87P)
IC801	8-759-424-79	IC S-8423YFS-T2	
IC802	8-759-642-45	IC TL1596CPW-ELM2000	
IC803	8-759-663-97	IC S579621PZ-TEB	
IC902	8-759-663-98	IC MB91192PFF-G-106-BND-ER	
IC803	8-759-641-64	IC S579611PZ-TEB	
IC901	8-759-593-47	IC AK6417AM-E2	
IC902	8-759-653-61	IC MB91192PFF-G-103-BND-ER	
		< COIL >	
L101	1-414-406-41	INDUCTOR 220uH	
L102	1-412-952-11	INDUCTOR 12uH	
L103	1-469-526-91	INDUCTOR 22uH	
L104	1-414-406-41	INDUCTOR 220uH	
L203	1-469-525-91	INDUCTOR 10uH	
L204	1-469-525-91	INDUCTOR 10uH	
L205	1-469-525-91	INDUCTOR 10uH	
L206	1-469-525-91	INDUCTOR 10uH	
L208	1-469-525-91	INDUCTOR 10uH	
L209	1-412-945-11	INDUCTOR 3.3uH	
L291	1-469-525-91	INDUCTOR 10uH	
L501	1-414-398-11	INDUCTOR 10uH	
L551	1-414-398-11	INDUCTOR 10uH	
L552	1-469-525-91	INDUCTOR 10uH	
L553	1-469-525-91	INDUCTOR 10uH	
L641	1-469-525-91	INDUCTOR 10uH	
L642	1-469-525-91	INDUCTOR 10uH	
L643	1-412-939-11	INDUCTOR 1uH	(TRV87/TRV87P)
L644	1-469-525-91	INDUCTOR 10uH	
L751	1-412-948-11	INDUCTOR 5.6uH	(TRV87/TRV87P)
L752	1-412-957-11	INDUCTOR 33uH	(TRV87/TRV87P)
L753	1-412-957-11	INDUCTOR 33uH	(TRV87/TRV87P)
L754	1-469-525-91	INDUCTOR 10uH	(TRV87/TRV87P)
		< TRANSISTOR >	
Q101	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
Q102	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q103	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q104	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q105	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q106	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q112	8-729-037-61	TRANSISTOR RN2104F(TPL3)	
Q113	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q203	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q204	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q205	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q206	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q207	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TR517)
Q208	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q209	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TR517)
Q211	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q213	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	(TRV87/TRV87P)
Q213	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV87/TRV87P)
Q214	8-729-042-29	TRANSISTOR RN1104F(TPL3)	(TRV87/TRV87P)
Q401	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q551	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q552	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q553	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q554	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q701	8-729-042-74	TRANSISTOR UN9216J-(K8).SO	(TRV87/TRV87P)
Q703	8-729-042-74	TRANSISTOR UN9216J-(K8).SO	(TRV87/TRV87P)
Q704	8-729-042-74	TRANSISTOR UN9216J-(K8).SO	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q706	8-729-042-74	TRANSISTOR UN9216J-(K8).SO	
Q707	8-729-037-63	TRANSISTOR UN9115J-(K8).SO	
Q712	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q713	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q801	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q802	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TRV87/TRV87P)
Q803	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q804	8-729-041-43	TRANSISTOR HN1L02FU(TE85R)	
Q805	8-729-042-29	TRANSISTOR RN1104F(TPL3)	(TRV87/TRV87P)
Q806	8-729-042-58	TRANSISTOR RN2102F(TPL3)	
Q974	8-729-042-29	TRANSISTOR RN1104F(TPL3)	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
Q975	8-729-041-23	TRANSISTOR MGSF1P02LT1	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)

Ref. No.	Part No.	Description			Remarks
		< RESISTOR >			
R101	1-216-806-11	RES-CHIP	56	5%	1/16W
R102	1-216-818-11	METAL CHIP	560	5%	1/16W
R103	1-216-864-11	METAL CHIP	0	5%	1/16W
R104	1-216-864-11	METAL CHIP	0	5%	1/16W
R105	1-216-809-11	METAL CHIP	100	5%	1/16W
R106	1-216-838-11	METAL CHIP	27K	5%	1/16W
R107	1-216-838-11	METAL CHIP	27K	5%	1/16W
R108	1-216-813-11	METAL CHIP	220	5%	1/16W
R109	1-216-813-11	METAL CHIP	220	5%	1/16W
R110	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R111	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R112	1-216-814-11	METAL CHIP	270	5%	1/16W
R113	1-216-813-11	METAL CHIP	220	5%	1/16W
R114	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R115	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R116	1-216-837-11	METAL CHIP	22K	5%	1/16W
R117	1-216-839-11	METAL CHIP	33K	5%	1/16W
R120	1-218-899-11	METAL CHIP	150K	0.5%	1/16W
R121	1-216-837-11	METAL CHIP	22K	5%	1/16W
R122	1-216-837-11	METAL CHIP	22K	5%	1/16W
R127	1-216-853-11	METAL CHIP	470K	5%	1/16W
R128	1-216-853-11	METAL CHIP	470K	5%	1/16W
R133	1-216-839-11	METAL CHIP	33K	5%	1/16W
R135	1-216-833-91	RES-CHIP	10K	5%	1/16W
R155	1-216-864-11	METAL CHIP	0	5%	1/16W
R201	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R202	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TRV87/TRV87P)
R203	1-216-295-91	SHORT	0		
R204	1-216-833-91	RES-CHIP	10K	5%	1/16W
R205	1-216-845-11	METAL CHIP	100K	5%	1/16W
R206	1-216-864-11	METAL CHIP	0	5%	1/16W
R208	1-216-833-91	RES-CHIP	10K	5%	1/16W
R209	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R210	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R212	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R213	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
					(TR517)
R214	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R215	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
					(TR517)
R222	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TRV87/TRV87P)
R223	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R224	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R225	1-216-821-11	METAL CHIP	1K	5%	1/16W
R226	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R228	1-216-817-11	METAL CHIP	470	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R229	1-216-809-11	METAL CHIP	100	5%	1/16W
R230	1-216-840-11	METAL CHIP	39K	5%	1/16W
R231	1-216-820-11	METAL CHIP	820	5%	1/16W
R232	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R233	1-216-864-11	METAL CHIP	0	5%	1/16W
R234	1-216-834-11	METAL CHIP	12K	5%	1/16W
R235	1-216-817-11	METAL CHIP	470	5%	1/16W
R236	1-216-813-11	METAL CHIP	220	5%	1/16W
R237	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R238	1-216-834-11	METAL CHIP	12K	5%	1/16W
R239	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R240	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R241	1-216-834-11	METAL CHIP	12K	5%	1/16W
R242	1-216-834-11	METAL CHIP	12K	5%	1/16W
R243	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R244	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TR517)
R245	1-216-834-11	METAL CHIP	12K	5%	1/16W
R246	1-216-834-11	METAL CHIP	12K	5%	1/16W
					(TR517)
R246	1-216-833-91	RES-CHIP	10K	5%	1/16W
					(TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R247	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TR517)
R247	1-216-817-11	METAL CHIP	470	5%	1/16W
					(TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R248	1-216-814-11	METAL CHIP	270	5%	1/16W
					(TR517)
R249	1-216-834-11	METAL CHIP	12K	5%	1/16W
R250	1-216-857-11	METAL CHIP	1M	5%	1/16W
R252	1-216-835-11	METAL CHIP	15K	5%	1/16W
R253	1-216-835-11	METAL CHIP	15K	5%	1/16W
R254	1-216-864-11	METAL CHIP	0	5%	1/16W
R256	1-216-834-11	METAL CHIP	12K	5%	1/16W
R257	1-216-817-11	METAL CHIP	470	5%	1/16W
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-833-91	RES-CHIP	10K	5%	1/16W
R260	1-216-841-11	METAL CHIP	47K	5%	1/16W
					(TRV87/TRV87P)
R261	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TRV87/TRV87P)
R262	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R263	1-216-841-11	METAL CHIP	47K	5%	1/16W
					(TRV87/TRV87P)
R264	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R265	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
					(TRV87/TRV87P)
R266	1-216-841-11	METAL CHIP	47K	5%	1/16W
					(TRV87/TRV87P)
R270	1-216-864-11	METAL CHIP	0	5%	1/16W
R271	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TRV87/TRV87P)

Ref. No.	Part No.	Description			Remarks
R273	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV87/TRV87P)
R274	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R276	1-216-864-11	METAL CHIP	0	5%	1/16W
R278	1-216-864-11	METAL CHIP	0	5%	1/16W
R279	1-216-864-11	METAL CHIP	0	5%	1/16W
R280	1-216-864-11	METAL CHIP	0	5%	1/16W
R281	1-216-821-11	METAL CHIP	1K	5%	1/16W
R283	1-216-864-11	METAL CHIP	0	5%	1/16W
R401	1-216-841-11	METAL CHIP	47K	5%	1/16W
R402	1-216-851-11	METAL CHIP	330K	5%	1/16W
R403	1-216-845-11	METAL CHIP	100K	5%	1/16W
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W
R406	1-216-845-11	METAL CHIP	100K	5%	1/16W
R407	1-216-817-11	METAL CHIP	470	5%	1/16W
R408	1-217-671-11	METAL CHIP	1	5%	1/10W
R409	1-217-671-11	METAL CHIP	1	5%	1/10W
R410	1-217-671-11	METAL CHIP	1	5%	1/10W
R411	1-216-023-00	METAL CHIP	82	5%	1/10W
R413	1-216-864-11	METAL CHIP	0	5%	1/16W
R414	1-216-817-11	METAL CHIP	470	5%	1/16W
R416	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R423	1-216-864-11	METAL CHIP	0	5%	1/16W
R424	1-216-835-11	METAL CHIP	15K	5%	1/16W
R425	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R426	1-216-845-11	METAL CHIP	100K	5%	1/16W
R427	1-216-864-11	METAL CHIP	0	5%	1/16W
R428	1-217-671-11	METAL CHIP	1	5%	1/10W
R429	1-217-671-11	METAL CHIP	1	5%	1/10W
R430	1-216-835-11	METAL CHIP	15K	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R432	1-216-841-11	METAL CHIP	47K	5%	1/16W
R433	1-216-864-11	METAL CHIP	0	5%	1/16W
R434	1-216-833-91	RES-CHIP	10K	5%	1/16W
R435	1-216-833-91	RES-CHIP	10K	5%	1/16W
R436	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R501	1-216-864-11	METAL CHIP	0	5%	1/16W
R502	1-216-864-11	METAL CHIP	0	5%	1/16W
R503	1-216-845-11	METAL CHIP	100K	5%	1/16W
R504	1-216-814-11	METAL CHIP	270	5%	1/16W
R505	1-216-809-11	METAL CHIP	100	5%	1/16W
R506	1-216-812-11	METAL CHIP	180	5%	1/16W
R509	1-216-857-11	METAL CHIP	1M	5%	1/16W
R512	1-216-853-11	METAL CHIP	470K	5%	1/16W
R515	1-216-841-11	METAL CHIP	47K	5%	1/16W
R516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R517	1-216-841-11	METAL CHIP	47K	5%	1/16W
R518	1-216-864-11	METAL CHIP	0	5%	1/16W (TRV57/TRV57P/TRV67/TRV87/TRV87P)
R519	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47)
R551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R552	1-216-821-11	METAL CHIP	1K	5%	1/16W
R553	1-216-295-91	SHORT	0		
R555	1-216-843-11	METAL CHIP	68K	5%	1/16W
R556	1-216-821-11	METAL CHIP	1K	5%	1/16W
R557	1-216-843-11	METAL CHIP	68K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
R558	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R559	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R560	1-216-797-11	METAL CHIP	10	5%	1/16W
R561	1-216-857-11	METAL CHIP	1M	5%	1/16W
R562	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R563	1-216-833-91	RES-CHIP	10K	5%	1/16W
R564	1-216-849-11	METAL CHIP	220K	5%	1/16W
R565	1-216-853-11	METAL CHIP	470K	5%	1/16W
R566	1-216-853-11	METAL CHIP	470K	5%	1/16W
R567	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R568	1-216-835-11	METAL CHIP	15K	5%	1/16W
R569	1-216-837-11	METAL CHIP	22K	5%	1/16W
R570	1-216-853-11	METAL CHIP	470K	5%	1/16W
R571	1-216-821-11	METAL CHIP	1K	5%	1/16W
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W
R573	1-216-815-11	METAL CHIP	330	5%	1/16W
R574	1-216-837-11	METAL CHIP	22K	5%	1/16W
R575	1-216-821-11	METAL CHIP	1K	5%	1/16W
R576	1-216-833-91	RES-CHIP	10K	5%	1/16W
R577	1-216-841-11	METAL CHIP	47K	5%	1/16W
R644	1-216-804-11	METAL CHIP	39	5%	1/16W (TRV67/TRV87/TRV87P)
R645	1-216-803-11	METAL CHIP	33	5%	1/16W (TRV67/TRV87/TRV87P)
R646	1-216-804-11	METAL CHIP	39	5%	1/16W (TRV67/TRV87/TRV87P)
R647	1-216-803-11	METAL CHIP	33	5%	1/16W (TRV67/TRV87/TRV87P)
R648	1-216-804-11	METAL CHIP	39	5%	1/16W
R649	1-216-803-11	METAL CHIP	33	5%	1/16W
R650	1-218-847-11	METAL CHIP	1K	0.5%	1/16W
R651	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R652	1-218-876-11	METAL CHIP	16K	0.5%	1/16W
R653	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87/TRV87P)
R655	1-216-821-11	METAL CHIP	1K	5%	1/16W
R656	1-216-821-11	METAL CHIP	1K	5%	1/16W (TRV67/TRV87/TRV87P)
R657	1-216-821-11	METAL CHIP	1K	5%	1/16W (TRV67/TRV87/TRV87P)
R658	1-216-821-11	METAL CHIP	1K	5%	1/16W
R703	1-216-841-11	METAL CHIP	47K	5%	1/16W
R704	1-216-833-91	RES-CHIP	10K	5%	1/16W
R705	1-216-809-11	METAL CHIP	100	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R706	1-216-809-11	METAL CHIP	100	5%	1/16W (TRV87/TRV87P)
R707	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV87/TRV87P)
R708	1-216-833-91	RES-CHIP	10K	5%	1/16W (TRV87/TRV87P)
R710	1-216-836-11	METAL CHIP	18K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R711	1-216-849-11	METAL CHIP	220K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R712	1-216-847-11	METAL CHIP	150K	5%	1/16W
R713	1-216-841-11	METAL CHIP	47K	5%	1/16W
R714	1-216-853-11	METAL CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description				Remarks
R715	1-216-853-11	METAL CHIP	470K	5%	1/16W	(TRV87/TRV87P)
R716	1-216-864-11	METAL CHIP	0	5%	1/16W	
R717	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV87/TRV87P)
R719	1-216-864-11	METAL CHIP	0	5%	1/16W	
R720	1-216-820-11	METAL CHIP	820	5%	1/16W	
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R722	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV87/TRV87P)
R723	1-216-864-11	METAL CHIP	0	5%	1/16W	
R724	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV87/TRV87P)
R725	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R726	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV87/TRV87P)
R728	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R729	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R730	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R731	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R755	1-216-836-11	METAL CHIP	18K	5%	1/16W	(TRV87/TRV87P)
R756	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV87/TRV87P)
R757	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV87/TRV87P)
R760	1-216-835-11	METAL CHIP	15K	5%	1/16W	(TRV87/TRV87P)
R761	1-216-857-11	METAL CHIP	1M	5%	1/16W	(TRV87/TRV87P)
R763	1-218-879-11	METAL CHIP	22K	0.5%	1/16W	(TRV87/TRV87P)
R764	1-216-815-11	METAL CHIP	330	5%	1/16W	(TRV87/TRV87P)
R765	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV87/TRV87P)
R767	1-216-817-11	METAL CHIP	470	5%	1/16W	(TRV87/TRV87P)
R768	1-216-847-11	METAL CHIP	150K	5%	1/16W	(TRV87/TRV87P)
R770	1-216-847-11	METAL CHIP	150K	5%	1/16W	(TRV87/TRV87P)
R771	1-216-818-11	METAL CHIP	560	5%	1/16W	(TRV87/TRV87P)
R772	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	(TRV87/TRV87P)
R773	1-216-817-11	METAL CHIP	470	5%	1/16W	(TRV87/TRV87P)
R774	1-216-840-11	METAL CHIP	39K	5%	1/16W	(TRV87/TRV87P)

Ref. No.	Part No.	Description				Remarks
R775	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR317/TR517/TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
R777	1-216-864-11	METAL CHIP	0	5%	1/16W	(TRV87/TRV87P)
R801	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R802	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TRV87/TRV87P)
R803	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R805	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	(TR317/TR517)
R806	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R807	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TRV87/TRV87P)
R808	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R809	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R810	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV87/TRV87P)
R811	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R813	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R814	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R815	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R816	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R817	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R818	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R819	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R820	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R821	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R822	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R823	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R824	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R825	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R831	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R832	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R833	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	
R834	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	
R835	1-218-911-11	METAL CHIP	470K	0.5%	1/16W	
R836	1-218-911-11	METAL CHIP	470K	0.5%	1/16W	
R837	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R838	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R839	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R840	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R843	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R844	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R845	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R847	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R848	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R849	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R865	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R866	1-216-854-11	METAL CHIP	560K	5%	1/16W	
R867	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R868	1-216-853-11	METAL CHIP	470K	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R869	1-216-853-11	METAL CHIP	470K	5%	1/16W
R870	1-216-853-11	METAL CHIP	470K	5%	1/16W
R871	1-216-857-11	METAL CHIP	1M	5%	1/16W
R872	1-216-845-11	METAL CHIP	100K	5%	1/16W
R873	1-216-845-11	METAL CHIP	100K	5%	1/16W
R874	1-216-821-11	METAL CHIP	1K	5%	1/16W
R875	1-216-821-11	METAL CHIP	1K	5%	1/16W
R876	1-219-570-11	RES-CHIP	10M	5%	1/16W
R877	1-216-821-11	METAL CHIP	1K	5%	1/16W
R878	1-216-845-11	METAL CHIP	100K	5%	1/16W
R879	1-216-853-11	METAL CHIP	470K	5%	1/16W
R880	1-216-853-11	METAL CHIP	470K	5%	1/16W
R881	1-216-853-11	METAL CHIP	470K	5%	1/16W
R882	1-216-817-11	METAL CHIP	470	5%	1/16W
R886	1-216-853-11	METAL CHIP	470K	5%	1/16W
R887	1-216-853-11	METAL CHIP	470K	5%	1/16W
R888	1-216-821-11	METAL CHIP	1K	5%	1/16W
R889	1-216-821-11	METAL CHIP	1K	5%	1/16W
R890	1-216-845-11	METAL CHIP	100K	5%	1/16W
R891	1-216-845-11	METAL CHIP	100K	5%	1/16W
R892	1-216-833-91	RES-CHIP	10K	5%	1/16W
R901	1-216-821-11	METAL CHIP	1K	5%	1/16W
R902	1-216-854-11	METAL CHIP	560K	5%	1/16W
R903	1-216-845-11	METAL CHIP	100K	5%	1/16W
R904	1-216-845-11	METAL CHIP	100K	5%	1/16W
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317/TR517/TRV17/TRV37/TRV47/ TRV57/TRV57P/TRV67)
R906	1-216-853-11	METAL CHIP	470K	5%	1/16W
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W
R909	1-216-845-11	METAL CHIP	100K	5%	1/16W
R910	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R911	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R912	1-216-845-11	METAL CHIP	100K	5%	1/16W
R913	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R914	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R915	1-216-864-11	METAL CHIP	0	5%	1/16W
R916	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R917	1-216-845-11	METAL CHIP	100K	5%	1/16W
R918	1-216-833-91	RES-CHIP	10K	5%	1/16W
R919	1-216-833-91	RES-CHIP	10K	5%	1/16W
R920	1-216-841-11	METAL CHIP	47K	5%	1/16W
R921	1-216-845-11	METAL CHIP	100K	5%	1/16W
R922	1-216-845-11	METAL CHIP	100K	5%	1/16W
R923	1-216-853-11	METAL CHIP	470K	5%	1/16W
R924	1-216-853-11	METAL CHIP	470K	5%	1/16W
R925	1-216-841-11	METAL CHIP	47K	5%	1/16W
R930	1-216-841-11	METAL CHIP	47K	5%	1/16W
R931	1-216-841-11	METAL CHIP	47K	5%	1/16W
R932	1-216-864-11	METAL CHIP	0	5%	1/16W
R933	1-216-864-11	METAL CHIP	0	5%	1/16W
R934	1-216-845-11	METAL CHIP	100K	5%	1/16W
R972	1-216-864-11	METAL CHIP	0	5%	1/16W (TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
R973	1-216-821-11	METAL CHIP	1K	5%	1/16W
R974	1-216-821-11	METAL CHIP	1K	5%	1/16W (TRV87/TRV87P)
R977	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317/TR517)

Ref. No.	Part No.	Description			Remarks
R978	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R979	1-216-864-11	METAL CHIP	0	5%	1/16W
R980	1-216-821-11	METAL CHIP	1K	5%	1/16W
R981	1-216-864-11	METAL CHIP	0	5%	1/16W
R982	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR517)
R983	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR517)
R984	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R985	1-216-842-11	METAL CHIP	56K	5%	1/16W (TRV57/TRV57P)
R985	1-216-845-11	METAL CHIP	100K	5%	1/16W (TRV67/TRV87/TRV87P)
R985	1-216-837-11	METAL CHIP	22K	5%	1/16W (TR517/TRV17/TRV37)
R985	1-216-833-91	RES-CHIP	10K	5%	1/16W (TR317/TRV47)
R986	1-216-843-11	METAL CHIP	68K	5%	1/16W (TRV57/TRV57P)
R986	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV67)
R986	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87/TRV87P)
R986	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR517/TRV17/TRV37)
R987	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R988	1-216-845-11	METAL CHIP	100K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R988	1-216-833-91	RES-CHIP	10K	5%	1/16W (TR317/TR517)
R989	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
R989	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317/TR517)
R990	1-216-295-11	SHORT	0 (TR317)		
R990	1-217-671-11	METAL CHIP	1	5%	1/10W (TR317/TR517)
R991	1-217-671-11	METAL CHIP	1	5%	1/10W (TR517)
R992	1-216-864-11	METAL CHIP	0	5%	1/16W (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
		< VIBRATOR >			
X501	1-760-320-11	VIBRATOR, CRYSTAL (28.636363MHz)			
X641	1-767-028-21	VIBRATOR, CRYSTAL (14.318182MHz)			(TRV87/TRV87P)
X801	1-767-980-21	VIBRATOR, CERAMIC (20.0MHz)			(TR317:E,HK/TR517:US,E/TRV17/TRV37/TRV57/TRV57P)
X802	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)			
X901	1-760-655-41	VIBRATOR, CRYSTAL (20.0MHz)			

Ref. No.	Part No.	Description			Remarks
	A-7074-193-A	VF-141 BOARD, COMPLETE (TR517)			
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		(Ref.No.;10000 Series)			
		< CAPACITOR >			
C4501	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C4503	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4504	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4507	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4510	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4511	1-164-739-11	CERAMIC CHIP	560PF	5%	50V
C4512	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4514	1-107-687-11	TANTAL. CHIP	3.3uF	20%	20V
C4515	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C4516	1-162-928-11	CERAMIC CHIP	120PF	5%	50V
C4517	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4518	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4519	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4520	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C4521	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C4523	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C4524	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C4526	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C4527	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN4501	1-764-526-11	CONNECTOR, FFC/FPC 18P			
CN4502	1-750-630-11	CONNECTOR, FFC/FPC (ZIF) 16P			
		< DIODE >			
D4502	8-713-102-80	DIODE 1T369-01-T8A			
D4503	8-719-077-74	DIODE MA2S784008S0			
D4504	8-719-077-74	DIODE MA2S784008S0			
		< FERRITE BEAD >			
FB4502	1-500-329-11	INDUCTOR CHIP	0UH		
FB4505	1-500-329-11	INDUCTOR CHIP	0UH		
		< IC >			
IC4501	8-759-591-95	IC RB5P0040M1			
IC4502	8-752-400-96	IC CXD3501R-T4			
		< COIL >			
L4501	1-469-525-91	INDUCTOR	10uH		
L4504	1-412-949-21	INDUCTOR	6.8uH		
		< TRANSISTOR >			
Q4504	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO		
		< RESISTOR >			
R4505	1-216-853-11	METAL CHIP	470K	5%	1/16W
R4507	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
R4508	1-216-845-11	METAL CHIP	100K	5%	1/16W
R4513	1-216-835-11	METAL CHIP	15K	5%	1/16W
R4515	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R4516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R4517	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4518	1-216-837-11	METAL CHIP	22K	5%	1/16W
R4520	1-216-843-11	METAL CHIP	68K	5%	1/16W
R4521	1-216-857-11	METAL CHIP	1M	5%	1/16W
R4522	1-216-845-11	METAL CHIP	100K	5%	1/16W
R4524	1-216-844-11	METAL CHIP	82K	5%	1/16W
R4525	1-216-838-11	METAL CHIP	27K	5%	1/16W
R4526	1-216-809-11	METAL CHIP	100	5%	1/16W
R4527	1-216-809-11	METAL CHIP	100	5%	1/16W
R4528	1-216-809-11	METAL CHIP	100	5%	1/16W
R4529	1-216-833-91	RES-CHIP	10K	5%	1/16W
R4530	1-216-845-11	METAL CHIP	100K	5%	1/16W
R4534	1-216-864-11	METAL CHIP	0	5%	1/16W
R4542	1-216-864-11	METAL CHIP	0	5%	1/16W
R4543	1-216-864-11	METAL CHIP	0	5%	1/16W
R4544	1-216-853-11	METAL CHIP	470K	5%	1/16W

Ref. No.	Part No.	Description			Remarks
	A-7073-838-A	VF-129 (N) BOARD, COMPLETE (TR317/TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)			
		**************************************			
		(Ref.No.;1000 Series)			
		< CAPACITOR >			
C901	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V
C902	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C903	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C904	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C905	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C906	1-162-638-11	CERAMIC CHIP	1uF		16V
C907	1-104-563-11	FILM CHIP	0.1uF	5%	16V
C908	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C909	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
⚠C910	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V
⚠C911	1-164-715-11	CERAMIC CHIP	0.0068uF	5%	50V
C912	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V
C913	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C914	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V
C915	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C916	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
		< CONNECTOR >			
* CN901	1-785-379-01	HOUSING, CONNECTOR			
* CN902	1-580-057-11	PIN, CONNECTOR (SMD) 4P			
		< DIODE >			
D901	8-719-951-21	DIODE PR1102W-TR			
D903	8-719-073-01	DIODE MA111-(K8).S0			
		< IC >			
IC901	8-759-196-14	IC BA7149F-E2			

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

VF-129 VL-29

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L901	1-412-031-11	INDUCTOR CHIP	47uH		
L902	1-410-387-11	INDUCTOR CHIP	33uH		
⚠L903	1-411-697-11	COIL, FERRITE (HLC)			
		< TRANSISTOR >			
Q901	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q902	8-729-106-68	TRANSISTOR	2SD1615-T1GLGK		
Q903	8-729-216-31	TRANSISTOR	2SA1163G-TE85L		
Q904	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
		< RESISTOR >			
R901	1-216-817-11	METAL CHIP	470	5%	1/16W
R902	1-216-817-11	METAL CHIP	470	5%	1/16W
R903	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R904	1-216-833-91	RES-CHIP	10K	5%	1/16W
R905	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R906	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W
R908	1-216-852-11	METAL CHIP	390K	5%	1/16W
R909	1-216-833-91	RES-CHIP	10K	5%	1/16W
R910	1-216-835-11	METAL CHIP	15K	5%	1/16W
R911	1-216-160-00	RES-CHIP	27	5%	1/8W
R912	1-216-857-11	METAL CHIP	1M	5%	1/16W
R915	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R917	1-218-891-11	METAL CHIP	68K	0.5%	1/16W
R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R919	1-216-843-11	METAL CHIP	68K	5%	1/16W
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W
R921	1-216-795-11	RES-CHIP	6.8	5%	1/16W
R922	1-216-850-11	METAL CHIP	270K	5%	1/16W
R923	1-216-857-11	METAL CHIP	1M	5%	1/16W
R924	1-216-862-11	RES-CHIP	2.7M	5%	1/16W
R925	1-216-862-11	RES-CHIP	2.7M	5%	1/16W
R926	1-216-821-11	METAL CHIP	1K	5%	1/16W
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W
R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W
R930	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R931	1-217-671-11	METAL CHIP	1	5%	1/10W
R932	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
		< VARIABLE RESISTOR >			
RV903	1-238-852-11	RES, ADJ, CERMET 470			
RV904	1-238-095-11	RES, ADJ, CERMET 470K			
		< TRANSFORMER >			
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK			
		< FLAT CABLE >			
⚠W901	1-540-019-21	SOCKET ASSY, CRT			

Ref. No.	Part No.	Description			Remarks
	A-7074-130-A	VL-29 BOARD, COMPLETE			(TRV17/TRV37/TRV57/TRV57P/ TRV67/TRV87/TRV87P)
		**************************************			
					(Ref.No.;1000 Series)
		< CAPACITOR >			
C151	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C153	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P			
		< COIL >			
L151	1-416-344-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q151	8-729-043-94	TRANSISTOR	CPH3106-PM-TL		
Q152	8-729-028-26	TRANSISTOR	2SK1829(TE85L)		
		< RESISTOR >			
R151	1-216-845-11	METAL CHIP	100K	5%	1/16W
R152	1-216-864-11	METAL CHIP	0	5%	1/16W
R153	1-216-813-11	METAL CHIP	220	5%	1/16W
R154	1-216-821-11	METAL CHIP	1K	5%	1/16W

MISCELLANEOUS
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Ref. No.	Part No.	Description	Remarks
1	1-517-857-11	LIGHT, VIDEO	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
13	1-694-384-11	TERMINAL BOARD, BATTERY	
15	1-672-663-21	FP-49 FLEXIBLE BOARD(TRV87/TRV87P)	
21	1-467-574-21	REMOTE COMMANDER (RMT-708)	
23	1-672-670-11	FP-43 FLEXIBLE BOARD	
51	1-475-621-11	SWITCH BLOCK, CONTROL(MR-8500)	
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
58	1-672-668-21	FP-62 FLEXIBLE BOARD(TRV87/TRV87P)	
101	1-475-621-11	SWITCH BLOCK, CONTROL(MR-8500)	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
108	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL	(TR317/TR517)
152	1-676-300-11	FP-152 FLEXIBLE BOARD	
154	1-960-161-11	HARNESS (DP-78)	
168	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67)
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)	
217	1-676-298-11	FP-150 FLEXIBLE BOARD	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500)	(TRV87/TRV87P)
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500)	(TR317/TR517/TRV17/TRV37/TRV47/ TRV57/TRV57P/TRV67)
225	1-672-673-11	FP-46 FLEXIBLE BOARD	(TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)
227	1-676-296-11	FP-147 FLEXIBLE BOARD	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remarks
230	1-672-671-11	FP-44 FLEXIBLE BOARD	(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P)
230	1-676-297-11	FP-149 FLEXIBLE BOARD(TR317/TR517)	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)	
312	1-676-299-11	FP-151 FLEXIBLE BOARD	
351	8-848-729-01	DEVICE, LENS LSV-630A	
360	1-758-084-21	FILTER BLOCK, OPTICAL	(TR317/TR517/TRV17/TRV37/TRV47/TRV87/TRV87P)
360	1-758-133-21	FILTER BLOCK, OPTICAL	(TRV57/TRV57P/TRV67)
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-13	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
D001	8-719-988-42	DIODE GL453	
IC201	A-7031-040-A	CCD BLOCK ASSY	(TR317/TR517/TRV17/TRV37/TRV47)
IC201	A-7031-052-A	CCD BLOCK ASSY (TRV87/TRV87P)	
IC201	A-7031-055-A	CCD BLOCK ASSY (TRV57/TRV57P/TRV67)	
LCD901	1-803-852-31	INDICATOR MODULE, LIQUID CRYSTAL	
LCD902	8-753-026-74	LCX0032-AK-J	
⚠LED901	1-517-858-11	LIGHT, BACK(TRV87/TRV87P)	
M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
M905	1-763-262-11	MOTOR, STEPPING F630	
M906	1-763-046-21	MOTOR, STEPPING Z600	
MIC901	1-542-312-11	MICROPHONE	
MIC902	1-542-312-11	MICROPHONE	
⚠ND901	1-517-752-31	TUBE, FLUORESCENT,COLD CATHODE	
S001	1-682-614-11	SWITCH,PUSH(3KEY)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY)(C.C.LOCK)	
S901	1-762-436-15	SWITCH, ROTARY (ENCODER)	
S910	1-771-848-11	SWITCH, PUSH	
SP901	1-504-753-41	SPEAKER (2.8CM)	
⚠V901	1-452-673-61	CRT ASSY (M01KXX90WB)	(Hi8 MP,ME/MP,REC PROOF)

ACCESSORIES
****

Ref. No.	Part No.	Description	Remarks
	1-467-574-21	REMOTE COMMANDER (RMT-708)	(TRV47/TRV57:US,CND,E,HK,KR,JE/TRV57P/TRV67:US,E,HK,KR,JE/TRV87:US,CND,E,HK,KR,JE/TRV87P)
⚠	1-475-599-11	ADAPTOR, AC	(TR317:E,HK/TR517:US,CND,E/TRV17/TRV37:US,CND,E/TRV47:E,HK,JE/TRV57:US,CND,E,HK,JE/TRV57P/TRV67:US,E,HK,JE/TRV87:US,CND,E,HK,JE/TRV87P)
⚠	1-475-599-71	ADAPTOR, AC	(TR317:KR/TRV47:KR/TRV57:KR/TRV67:KR/TRV87:KR)
⚠	1-569-007-11	ADAPTOR, CONVERSION	(TRV47:JE/TRV57:JE/TRV67:JE/TRV87:JE)
⚠	1-569-008-21	ADAPTOR, CONVERSION 2P	(TR317:E/TR517:E/TRV37:E/TRV47:E/TRV57:E/TRV57P/TRV67:E/TRV87:E/TRV87P)
	1-575-334-11	CORD, CONNECTION (A/V)(1.5m)	(TRV87:US,CND,E,HK,KR,JE/TRV87P)
	1-696-862-21	CORD, CONNECTION (A/V)(1.5m)	(TR317:E,HK,KR/TRV517:US,CND,E/TRV17/TRV37:US,CND,E/TRV47/TRV57:US,CND,E,HK,KR,JE/TRV57P/TRV67:US,E,HK,KR,JE)
⚠	1-769-608-11	CORD, POWER	(TR317:E/TR517:E/TRV37:E/TRV47:E/TRV57:E/TRV57P/TRV67:E/TRV87:E/TRV87P)
⚠	1-783-374-11	CORD, POWER	(TR317:HK/TRV47:HK/TRV57:HK/TRV67:HK/TRV87:HK)
⚠	1-790-073-11	CORD, POWER	(TRV47:JE/TRV57:JE/TRV67:JE/TRV87:JE)
⚠	1-790-107-22	CORD, POWER	(TR517:US,CND/TRV17/TRV37:US,CND/TRV57:US,CND/TRV67:US/TRV87:US,CND)
	3-868-320-11	MANUAL, INSTRUCTION (ENGLISH)	(TR517:US,CND)
	3-868-320-21	MANUAL, INSTRUCTION (FRENCH)	(TR517:CND)
	3-868-320-31	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)	(TR317:E/TR517:E)
	3-868-320-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)	(TR317:E,HK/TR517:E)
	3-868-320-51	MANUAL, INSTRUCTION (KOREAN)	(TR317:KR)
	3-868-320-61	MANUAL, INSTRUCTION (ARABIC)	(TR317:E/TR517:E)
	3-868-320-71	MANUAL, INSTRUCTION (ENGLISH)	(TR317:E,HK/TR517:E)
	3-868-323-11	MANUAL, INSTRUCTION (ENGLISH)	(TRV37:US,CND/TRV57:US,CND/TRV67:US/TRV87:US,CND)
	3-868-323-21	MANUAL, INSTRUCTION (FRENCH)	(TRV17/TRV37:CND/TRV57:CND/TRV87:CND)
	3-868-323-31	MANUAL, INSTRUCTION (SPANISH/PORTUGUESE)	(TRV37:E/TRV47:E,JE/TRV57:E,JE/TRV57P/TRV67:E,JE/TRV87:E,JE/TRV87P)
	3-868-323-41	MANUAL, INSTRUCTION (TRADITIONAL CHINESE)	(TRV47:E,HK/TRV57:E,HK/TRV67:E,HK/TRV87:E,HK)
	3-868-323-51	MANUAL, INSTRUCTION (KOREAN)	(TRV47:KR,JE/TRV57:KR,JE/TRV67:KR,JE/TRV87:KR,JE)
	3-868-323-61	MANUAL, INSTRUCTION (ARABIC)	(TRV47:E/TRV57:E/TRV67:E/TRV87:E)
	3-868-323-71	MANUAL, INSTRUCTION (ENGLISH)	(TRV37:E/TRV47:E,HK,JE/TRV57:E,HK,JE/TRV57P/TRV67:E,HK,JE/TRV87:E,HK,JE/TRV87P)
	3-987-015-01	BELT (S), SHOULDER	(TR317:E,HK,KR/TR517:US,CND,E/TRV17/TRV37:US,CND,E/TRV47/TRV57:US,CND,E,HK,KR,JE/TRV57P/TRV67:US,E,HK,KR,JE/TRV87:US,CND,E,HK,KR,JE/TRV87P)
	3-988-960-01	BAG (8500), CARRYING (TRV57P/TRV87P)	
	A-7094-140-A	NP-330 BATTERY PACK	(TR517:US,CND/TRV17/TRV37:US,CND/TRV57:US,CND/TRV67:US/TRV87:US,CND)
	A-7094-140-A	NP-330 BATTERY PACK	(TR317/TR517:E/TRV37:E/TRV47/TRV57:E,HK,KR,JE/TRV57P/TRV67:E,HK,KR,JE/TRV87:E,HK,KR,JE/TRV87P)

Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

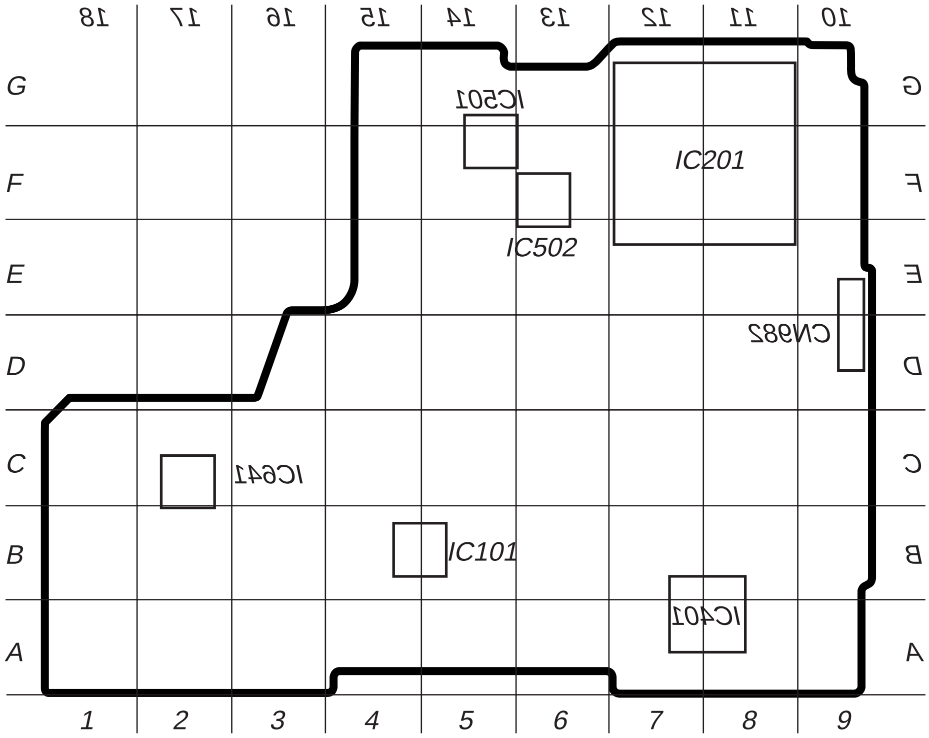
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	**Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

〈PARTS REFERENCE SHEET〉

You can find the parts position of location of mount locations applying to VC-234 board of a set.

VC-234 CCD-TR317/TR517/TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/TRV87/TRV87P

SIDE A


18
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16
15
14
13
12
11
10
G
F
E
D
C
B
A
IC501
IC201
IC502
CN982
IC641
IC101
IC401
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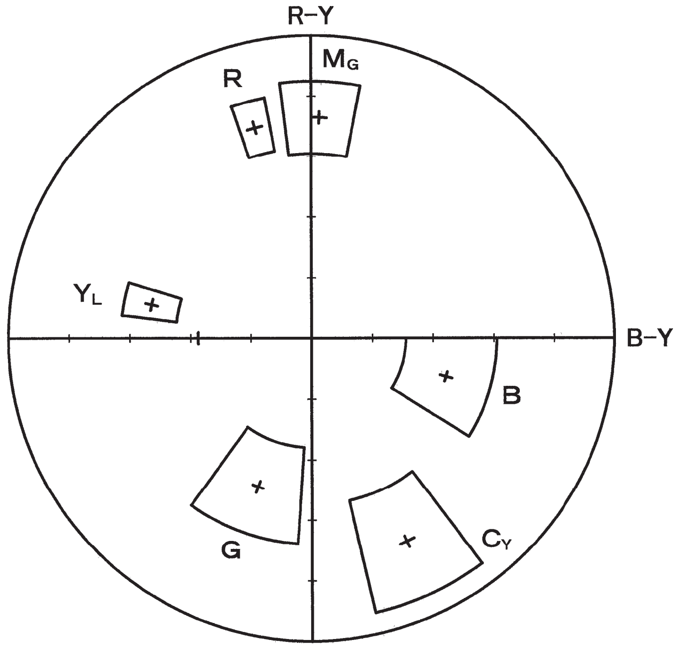
9

VC-234 CCD-TR317/TR517/TRV17/TRV37/TRV47/
TRV57/TRV57P/TRV67/TRV87/TRV87P

SIDE B

⟨FOR CAMERA COLOR REPRODUCTION ADJUSTMENT⟩

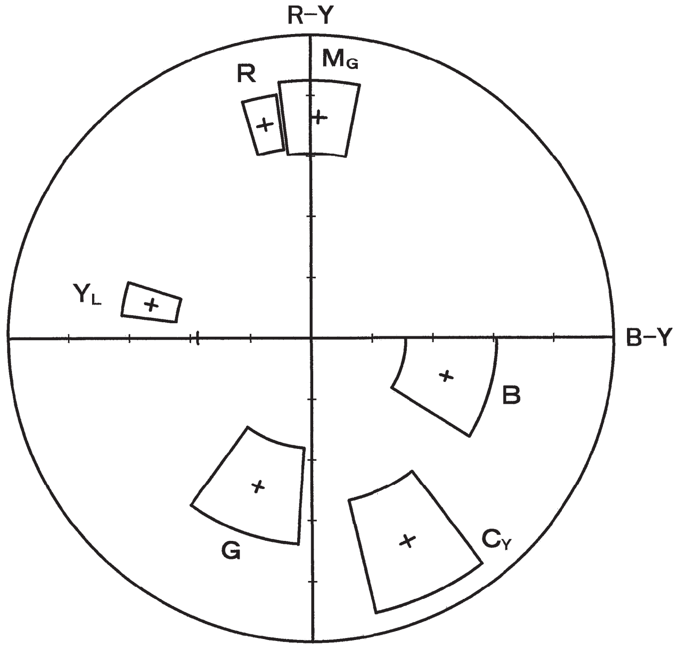
For 760H model and 510H TYPE S model


R−Y
MG
R
YL
B−Y
B
G
CY

***CCD-TRV57/TRV57P/TRV67/
TRV87/TRV87P***

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts referencesheets with a clear sheet for use.

For 510H TYPE P model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MG
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***CCD-TR317/TR517/TRV17/
TRV37/TRV47***

9-974-195-12

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CCD-TR317/TR517
CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
RMT-708

SONY®

SERVICE MANUAL

2000. 10

US Model
CCD-TR517/TRV37/TRV57/TRV67/TRV87
Canadian Model
CCD-TR517/TRV17/TRV37/TRV57/TRV87
E Model
CCD-TR317/TR517/TRV37/
TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
Hong Kong Model
Korea Model
CCD-TR317/TRV47/TRV57/
TRV67/TRV87
Brazilian Model
CCD-TR317/TR517/TRV37/TRV67
Argentina Model
CCD-TR517/TRV37/TRV67
Tourist Model
CCD-TRV47/TRV57/TRV67/TRV87

SUPPLEMENT-1

File this supplement-1 with the Service Manual.

- Type C of LCD unit is added to the conventional Type S of LCD unit.

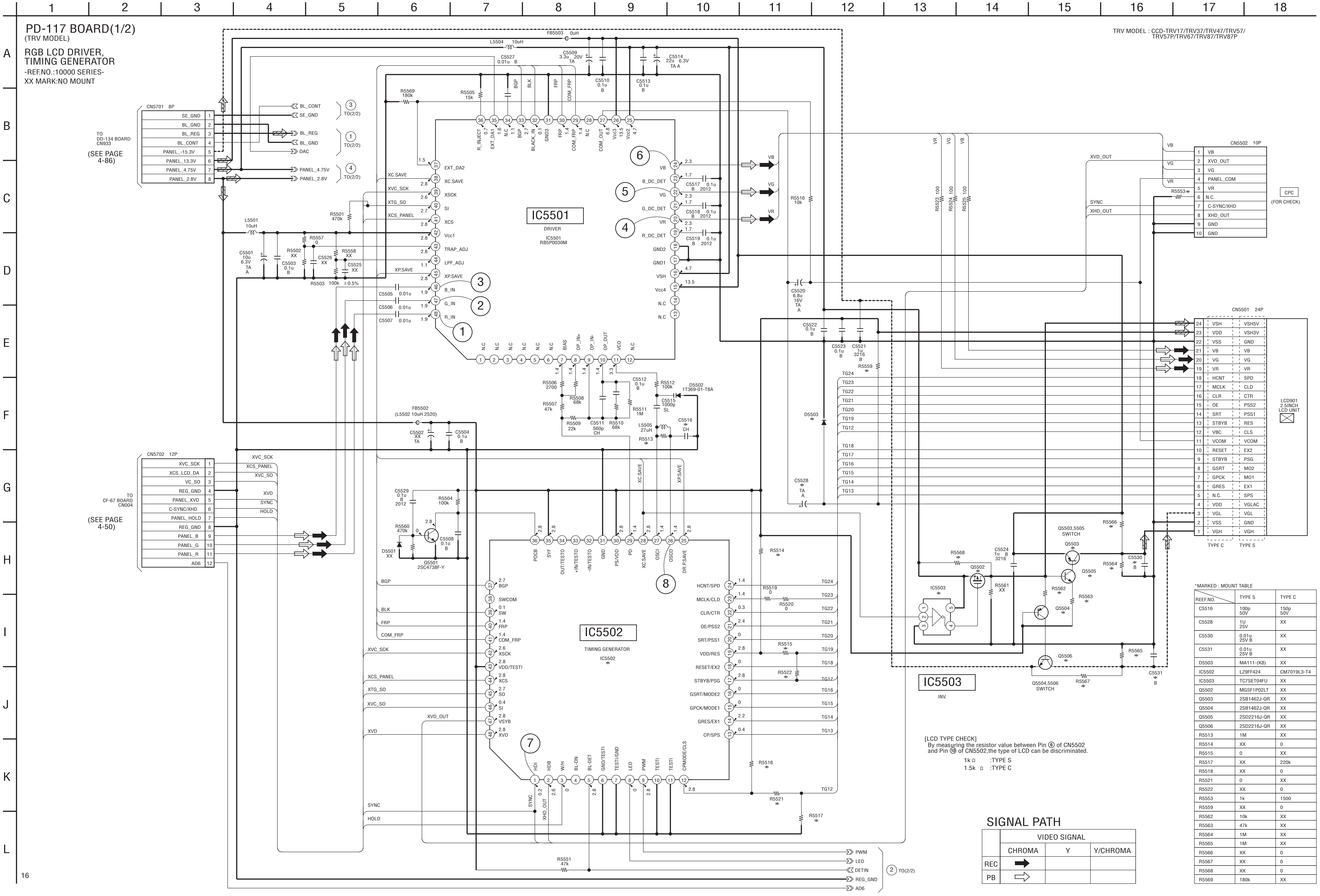
Subject: 1. Addition of the LCD unit.
2. Changed Schematic Diagrams.

(PV00-013)

Note: For the method of identifying the Types of LCD. refer to page 5-34 for “1-6. LCD SYSTEM ADJUSTMENT. LCD Type check” of original Service Manual (9-974-195-11).

For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-96 for waveforms.


PD-117 BOARD(1/2)
(TRV MODEL)
RGB LCD DRIVER,
TIMING GENERATOR
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P
CN5701 8P
SE_GND 1
BL_GND 2
BL_REG 3
BL_CONT 4
PANEL_-15.3V 5
PANEL_13.3V 6
PANEL_4.75V 7
PANEL_2.8V 8
TO DD-134 BOARD CN933
(SEE PAGE 4-86)
TO(2/2)
CN5702 12P
XVC_SCK 1
XCS_LCD_DA 2
VC_SO 3
REG_GND 4
PANEL_XVD 5
C-SYNC/XHD 6
PANEL_HOLD 7
REG_GND 8
PANEL_B 9
PANEL_G 10
PANEL_R 11
AD6 12
TO CF-67 BOARD CN004
(SEE PAGE 4-50)
IC5501
DRIVER
IC5501 RB5P0030M
IC5502
TIMING GENERATOR
IC5502 *
IC5503
INV.
Q5501 2SC4738F-Y
Q5503,5505 SWITCH
Q5504,5506 SWITCH
CN5502 10P
VB
XVD_OUT
VG
PANEL_COM
VR
N.C.
C-SYNC/XHD
XHD_OUT
GND
GND
CPC (FOR CHECK)
CN5501 24P
TYPE C
TYPE S
LCD901 2.5INCH LCD UNIT
PWM
LED
DETIN
REG_GND
AD6
16

[LCD TYPE CHECK]
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502,the type of LCD can be discriminated.

1k Ω :TYPE S
1.5k Ω :TYPE C

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

*MARKED : MOUNT TABLE

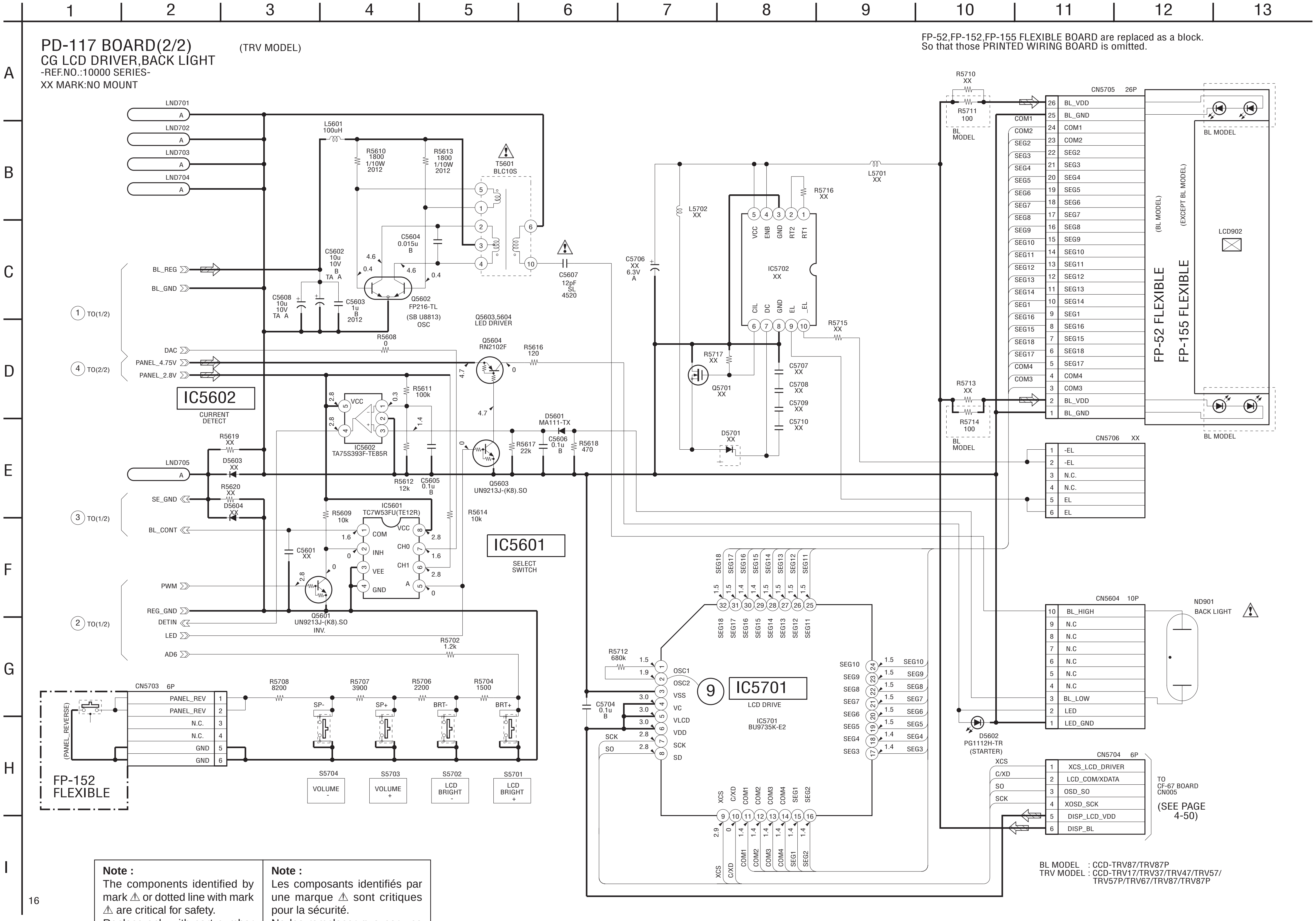
REEF.NO.	TYPE S	TYPE C
C5516	100p 50V	150p 50V
C5528	1U 25V	XX
C5530	0.01u 25V B	XX
C5531	0.01u 25V B	XX
D5503	MA111-(K8)	XX
IC5502	LZ9FF424	CM7019L3-T4
IC5503	TC7SET04FU	XX
Q5502	MGSF1P02LT	XX
Q5503	2SB1462J-QR	XX
Q5504	2SB1462J-QR	XX
Q5505	2SD2216J-QR	XX
Q5506	2SD2216J-QR	XX
R5513	1M	XX
R5514	XX	0
R5515	0	XX
R5517	XX	220k
R5518	XX	0
R5521	0	XX
R5522	XX	0
R5553	1k	1500
R5559	XX	0
R5562	10k	XX
R5563	47k	XX
R5564	1M	XX
R5565	1M	XX
R5566	XX	0
R5567	XX	0
R5568	XX	0
R5569	180k	XX

RGB LCD DRIVER, TIMING GENERATOR

PD-117 (1/2)

For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-96 for waveform.


1
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11
12
13
A
B
C
D
E
F
G
H
I
PD-117 BOARD(2/2)
(TRV MODEL)
CG LCD DRIVER,BACK LIGHT
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
FP-52,FP-152,FP-155 FLEXIBLE BOARD are replaced as a block.
So that those PRINTED WIRING BOARD is omitted.
LND701
LND702
LND703
LND704
LND705
L5601 100uH
R5610 1800 1/10W 2012
R5613 1800 1/10W 2012
T5601 BLC10S
C5604 0.015u B
C5602 10u 10V B TA A
C5608 10u 10V TA A
C5603 1u B 2012
Q5602 FP216-TL
(SB U8813) OSC
Q5603,5604 LED DRIVER
C5607 12pF SL 4520
C5706 XX 6.3V A
L5702 XX
L5701 XX
R5716 XX
IC5702 XX
R5715 XX
R5717 XX
Q5701 XX
D5701 XX
C5707 XX
C5708 XX
C5709 XX
C5710 XX
BL_REG
BL_GND
TO(1/2)
DAC
PANEL_4.75V
PANEL_2.8V
TO(2/2)
R5608 0
Q5604 RN2102F
R5616 120
IC5602
CURRENT DETECT
R5611 100k
IC5602 TA75S393F-TE85R
D5601 MA111-TX
R5617 22k
C5606 0.1u B
R5618 470
Q5603 UN9213J-(K8).SO
R5619 XX
D5603 XX
R5620 XX
D5604 XX
R5612 12k
C5605 0.1u B
SE_GND
BL_CONT
R5609 10k
IC5601 TC7W53FU(TE12R)
R5614 10k
IC5601
SELECT SWITCH
C5601 XX
Q5601 UN9213J-(K8).SO INV.
PWM
REG_GND
DETIN
LED
AD6
R5702 1.2k
CN5703 6P
PANEL_REV
N.C.
GND
(PANEL_REVERSE)
FP-152 FLEXIBLE
R5708 8200
R5707 3900
R5706 2200
R5704 1500
SP-
SP+
BRT-
BRT+
S5704 VOLUME -
S5703 VOLUME +
S5702 LCD BRIGHT -
S5701 LCD BRIGHT +
R5712 680k
C5704 0.1u B
IC5701
LCD DRIVE
IC5701 BU9735K-E2
OSC1
OSC2
VSS
VC
VLCD
VDD
SCK
SD
SO
XCS
C/XD
R5710 XX
R5711 100
BL MODEL
CN5705 26P
BL_VDD
BL_GND
COM1
COM2
COM3
COM4
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
SEG17
SEG18
FP-52 FLEXIBLE
FP-155 FLEXIBLE
(BL MODEL)
(EXCEPT BL MODEL)
LCD902
R5713 XX
R5714 100
CN5706 XX
-EL
EL
CN5604 10P
BL_HIGH
BL_LOW
LED_GND
ND901 BACK LIGHT
D5602 PG1112H-TR (STARTER)
CN5704 6P
XCS_LCD_DRIVER
LCD_COM/XDATA
OSD_SO
XOSD_SCK
DISP_LCD_VDD
DISP_BL
TO CF-67 BOARD CN005
(SEE PAGE 4-50)
BL MODEL : CCD-TRV87/TRV87P
TRV MODEL : CCD-TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P

Note :	Note :
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

16

CG LCD DRIVER, BACK LIGHT DRIVE

PD-117 (2/2)

SECTION 6. REPAIR PARTS LIST
6-1. EXPLODED VIEWS

☞ : Added portion. ▨ : Changed portion.

Page	Before Addition	After Addition
6-4	**6-1-4. LCD BLOCK ASSEMBLY (TRV MODEL) (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)** Ref. No. Part No. Description Remarks 157 A-7074-229-A PD-117 (N-SH) BOARD,COMPLETE 168 1-803-844-81 DISPLAY PANEL, LIQUID CRYSTAL (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67) LCD901 1-803-852-31 INDICATOR MODULE, LIQUID CRYSTAL ⚠LED901 1-517-858-11 LIGHT, BACK (TRV87/TRV87P) ⚠ND901 1-517-752-31 TUBE, FLUORESCENT,COLD CATHODE **Note :** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified. **Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.	**6-1-4. LCD BLOCK ASSEMBLY (TRV MODEL) (TRV17/TRV37/TRV47/TRV57/TRV57P/ TRV67/TRV87/TRV87P)** Ref. No. Part No. Description Remarks 157 A-7074-141-A PD-117 (P-VLO) BOARD,COMPLETE (TYPE C) 157 A-7074-229-A PD-117 (N-SH) BOARD,COMPLETE (TYPE S) 168 1-803-844-81 DISPLAY PANEL, LIQUID CRYSTAL (TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67) LCD901 1-803-852-21 INDICATOR MODULE, LIQUID CRYSTAL (TYPE S) LCD901 1-803-859-21 INDICATOR MODULE, LIQUID CRYSTAL (TYPE C) ⚠LED901 1-517-858-11 LIGHT, BACK (TRV87/TRV87P) ⚠ND901 1-517-752-31 TUBE, FLUORESCENT,COLD CATHODE For the method of identifying the Type of LCD. refer to page 5-34 for "1-6. LCD SYSTEM ADJUSTMENT. LCD Type check" of original Service Manual (9-974-195-11). **Note :** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified. **Note :** Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

PD-117

Ref. No.	Part No.	Description	Remarks
	A-7074-141-A	PD-117(P-VLO) BOARD, COMPLETE (TYPE C) **	
	A-7074-229-A	PD-117(N-SH) BOARD, COMPLETE (TYPE S) **	
		(TRV17/TRV37/TRV47/TRV57/TRV57P/TRV67/TRV87/TRV87P) (Ref.No.;10000 Series)	
		< CAPACITOR >	
C5501	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C5503	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5504	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5505	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5506	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5507	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5508	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5509	1-107-687-11	TANTAL. CHIP 3.3uF 20% 20V	
C5510	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5511	1-164-739-11	CERAMIC CHIP 560PF 5% 50V	
C5512	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5513	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5514	1-119-750-11	TANTAL. CHIP 22uF 20% 6.3V	
C5515	1-164-357-11	CERAMIC CHIP 1000PF 5% 50V	
C5516	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TYPE S)
C5516	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	(TYPE C)
C5517	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C5518	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C5519	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V	
C5520	1-113-994-11	TANTAL. CHIP 6.8uF 20% 16V	
C5521	1-107-682-11	CERAMIC CHIP 1uF 1 16V	
C5522	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5523	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5524	1-107-682-11	CERAMIC CHIP 1uF 10% 16V	
C5527	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5528	1-135-177-21	TANTALUM CHIP 1uF 20% 25V	(TYPE S)
C5529	1-107-725-11	CERAMIC CHIP 0.1uF 10% 16V	
C5530	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TYPE S)
C5531	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TYPE S)
C5602	1-125-822-11	TANTAL CHIP 10uF 10% 10V	
C5603	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	
C5604	1-164-657-11	CERAMIC CHIP 0.015uF 10% 50V	
C5605	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5606	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
⚠C5607	1-131-959-91	CERAMIC CHIP 12PF 10% 3KV	
C5608	1-125-822-11	TANTAL. CHIP 10uF 20% 10V	
C5704	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
		< CONNECTOR >	
CN5501	1-573-364-11	CONNECTOR, FFC/FPC 24P	
CN5501	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P	
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P	
CN5604	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P	
CN5701	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P	
CN5702	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P	
CN5703	1-573-346-21	CONNECTOR, FFC/FPC 6P	
CN5703	1-691-344-11	CONNECTOR, FFC/FPC (ZIF) 6P	
* CN5703	1-778-154-21	CONNECTOR, FFC/FPC (ZIF) 6P	
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P	
CN5705	1-794-050-21	CONNECTOR, FFC/FPC (ZIF) 26P	
		< DIODE >	
D5502	8-713-102-80	DIODE 1T369-01-T8A	
D5503	8-719-073-01	DIODE MA111-(K8).S0	(TYPE S)
D5601	8-719-073-01	DIODE MA111-(K8).S0	
D5602	8-719-062-44	DIODE PG1112H-TR	
		< FERRITE BEAD >	
FB5502	1-500-329-11	INDUCTOR CHIP 0UH	
FB5503	1-500-329-11	INDUCTOR CHIP 0UH	
		< IC >	
IC5501	8-759-660-92	IC RB5P003AM1	
IC5502	8-759-660-91	IC LZ9FF424	(TYPE S)
IC5502	8-759-591-93	IC CM7019L3-T4	(TYPE C)
IC5503	8-759-478-92	IC TC7SET04FU(TE85R)	(TYPE S)
IC5601	8-759-564-49	IC TC7W53FU(TE12R)	
IC5602	8-759-277-98	IC TA75S393F-TE85R	
IC5701	8-759-573-02	IC BU9735K-E2	
		< COIL >	
L5501	1-469-525-91	INDUCTOR 10uH	
L5504	1-469-525-91	INDUCTOR 10uH	
L5505	1-412-956-21	INDUCTOR 27uH	
L5601	1-419-387-21	INDUCTOR 100uH	
		< TRANSISTOR >	
Q5501	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q5502	8-729-041-23	TRANSISTOR MGSF1P02LT1	(TYPE S)
Q5503	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TYPE S)
Q5504	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TYPE S)
Q5505	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TYPE S)
Q5506	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	(TYPE S)
Q5601	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q5602	8-729-039-43	TRANSISTOR FP216-TL	
Q5603	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q5604	8-729-042-58	TRANSISTOR RN2102F(TPL3)	
		< RESISTOR >	
R5501	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R5503	1-218-895-11	METAL CHIP 100K 0.5% 1/16W	
R5504	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R5505	1-216-835-11	METAL CHIP 15K 5% 1/16W	
R5506	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remarks
R5507	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5508	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5509	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5510	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5511	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5513	1-216-857-11	METAL CHIP	1M	5%	1/16W (TYPE S)
R5514	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5515	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE S)
R5516	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5517	1-216-849-11	METAL CHIP	220K	5%	1/16W (TYPE C)
R5518	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5519	1-216-864-11	METAL CHIP	0	5%	1/16W
R5520	1-216-864-11	METAL CHIP	0	5%	1/16W
R5521	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE S)
R5522	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5523	1-216-809-11	METAL CHIP	100	5%	1/16W
R5524	1-216-809-11	METAL CHIP	100	5%	1/16W
R5525	1-216-809-11	METAL CHIP	100	5%	1/16W
R5551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5553	1-216-821-11	METAL CHIP	1K	5%	1/16W (TYPE S)
R5553	1-216-823-11	METAL CHIP	1.5K	5%	1/16W (TYPE C)
R5557	1-216-864-11	METAL CHIP	0	5%	1/16W
R5559	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5560	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5562	1-216-833-91	RES-CHIP	10K	5%	1/16W (TYPE S)
R5563	1-216-841-11	METAL CHIP	47K	5%	1/16W (TYPE S)
R5564	1-216-857-11	METAL CHIP	1M	5%	1/16W (TYPE S)
R5565	1-216-857-11	METAL CHIP	1M	5%	1/16W (TYPE S)
R5566	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5567	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5568	1-216-864-11	METAL CHIP	0	5%	1/16W (TYPE C)
R5569	1-216-848-11	METAL CHIP	180K	5%	1/16W (TYPE S)
R5608	1-216-864-11	METAL CHIP	0	5%	1/16W
R5609	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5610	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5612	1-216-834-11	METAL CHIP	12K	5%	1/16W
R5613	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5614	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5616	1-216-810-11	METAL CHIP	120	5%	1/16W
R5617	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5618	1-216-817-11	METAL CHIP	470	5%	1/16W
R5702	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R5704	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5706	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R5707	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R5708	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R5711	1-216-809-11	METAL CHIP	100	5%	1/16W
R5712	1-216-855-11	METAL CHIP	680K	5%	1/16W
R5714	1-216-809-11	METAL CHIP	100	5%	1/16W
		< SWITCH >			
S5701	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT +)			
S5702	1-692-088-41	SWITCH, TACTILE (LCD BRIGHT -)			
S5703	1-692-088-41	SWITCH, TACTILE (VOLUME +)			
S5704	1-692-088-41	SWITCH, TACTILE (VOLUME -)			
		< TRANSFORMER >			
⚠T5601	1-435-226-11	TRANSFORMER, INVERTER			

Note :	**Note :**
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Sony Corporation
Personal VIDEO Products Company

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CCD-TR317/TR517
CCD-TRV17/TRV37/TRV47/TRV57/
TRV57P/TRV67/TRV87/TRV87P
RMT-708

SONY

SERVICE MANUAL

2000. 11

US Model
CCD-TR517/TRV37/TRV57/TRV67/TRV87
Canadian Model
CCD-TR517/TRV17/TRV37/TRV57/TRV87
E Model
CCD-TR317/TR517/TRV37/
TRV47/TRV57/TRV57P/
TRV67/TRV87/TRV87P
Hong Kong Model
Korea Model
CCD-TR317/TRV47/TRV57/
TRV67/TRV87
Brazilian Model
CCD-TR317/TR517/TRV37/TRV67
Argentina Model
CCD-TR517/TRV37/TRV67
Tourist Model
CCD-TRV47/TRV57/TRV67/TRV87

CORRECTION-1

Correct your service manual as shown below.
(PV00-018)

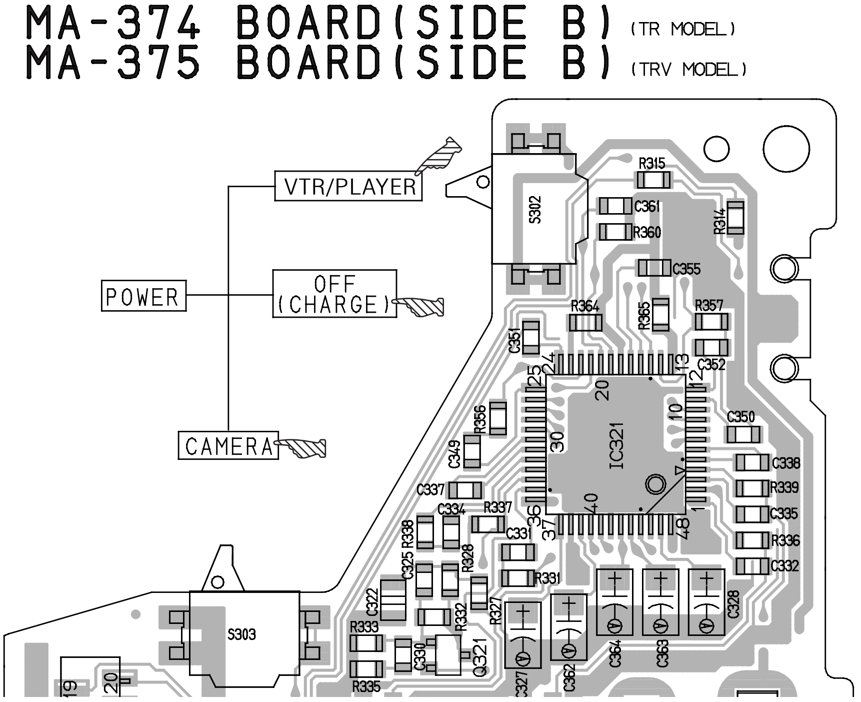
Subject:
Change of panel name.

SECTION 4. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS
4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

MA-374/375 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-374/375 Board; 3,000 Series —

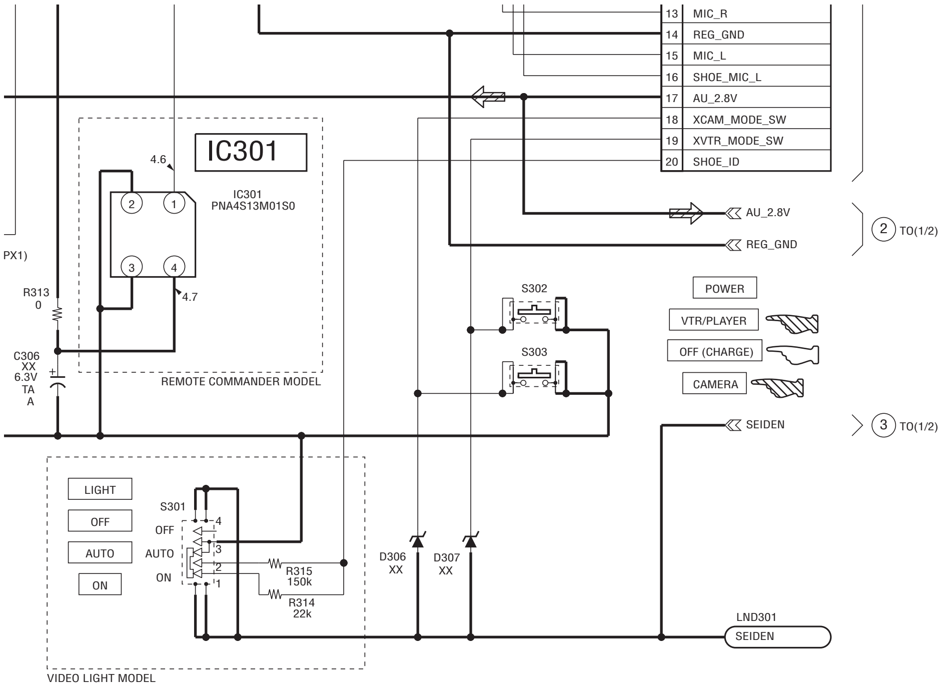
: Changed portion.

Page	CORRECT
4-66	

MA-374 BOARD(SIDE B) (TR MODEL)
MA-375 BOARD(SIDE B) (TRV MODEL)
VTR/PLAYER
POWER
OFF (CHARGE)
CAMERA
S302
S303
IC321
Q321
R315
C361
R360
R314
C355
R364
R365
R357
C351
C352
C350
R356
C349
C338
R339
C337
C335
R336
C334
R337
C332
R338
C331
R331
C325
R328
C322
R327
R332
R333
C330
C328
C364
C363
C327
C362
R335
24
25
20
13
12
10
30
36
37
40
48
1
19
20

CCD-TR317/TR517/TRV17/TRV37/TRV47/ TRV57/TRV57P/TRV67/TRV87/TRV87P

☞ : Added portion. ▨ : Changed portion.

Page	CORRECT
4-70	 13 MIC_R 14 REG_GND 15 MIC_L 16 SHOE_MIC_L 17 AU_2.8V 18 XCAM_MODE_SW 19 XVTR_MODE_SW 20 SHOE_ID IC301 4.6 IC301 PNA4S13M01S0 2 1 3 4 4.7 PX1) R313 0 C306 XX 6.3V TA A REMOTE COMMANDER MODEL AU_2.8V REG_GND 2 TO(1/2) S302 S303 POWER VTR/PLAYER OFF (CHARGE) CAMERA SEIDEN 3 TO(1/2) LIGHT OFF AUTO ON S301 OFF AUTO ON 4 3 2 1 R315 150k R314 22k D306 XX D307 XX LND301 SEIDEN VIDEO LIGHT MODEL

SECTION 6. REPAIR PARTS LIST

6-2. ELECTRICAL PARTS LIST

▨ : Changed portion.

Page	INCORRECT				CORRECT			
	Ref. No.	Part No.	Description	Remarks	Ref. No.	Part No.	Description	Remarks
6-18			< SWITCH >				< SWITCH >	
	S302	1-771-331-51	SWITCH, PUSH (1 KEY) (PLAYER ON)		S302	1-771-331-51	SWITCH, PUSH (1 KEY) (VTR/PLAYER)	
	S303	1-771-331-21	SWITCH, PUSH (1 KEY) (CAMERA ON)		S303	1-771-331-71	SWITCH, PUSH (1 KEY) (CAMERA)	
6-20			< SWITCH >				< SWITCH >	
	S301	1-692-605-11	SWITCH, SLIDE (TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)		S301	1-692-605-11	SWITCH, SLIDE (TRV17/TRV37/TRV57/TRV57P/TRV67/TRV87/TRV87P)	
	S302	1-771-331-51	SWITCH, PUSH (1 KEY) (VTR ON or PLAYER ON)		S302	1-771-331-51	SWITCH, PUSH (1 KEY) (VTR/PLAYER)	
	S303	1-771-331-21	SWITCH, PUSH (1 KEY)(CAMERA ON)		S303	1-771-331-71	SWITCH, PUSH (1 KEY) (CAMERA)	

Sony Corporation
Personal VIDEO Products Company

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Revision History

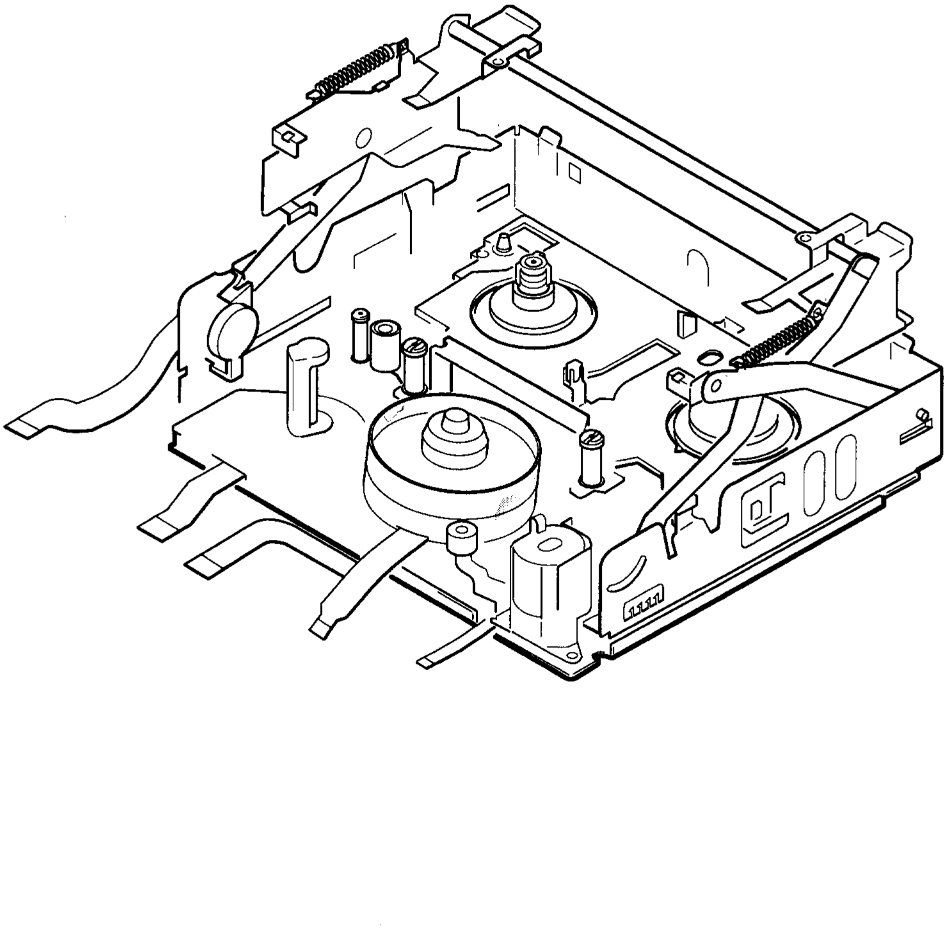
Ver.	Date	History	Contents	S.M. Rev. issued
1.0	1999.12	Official Release	—	—
1.1	2000.10	Supplement-1	Addition of the LCD unit. Changed Schematic Diagrams.	No
1.2	2000.11	Correction-1	Change of panel name. S.M. correction: Page 4-66, 4-70, 6-18, 6-20	Yes
1.3	2001.09	Correction-2 (PV01-015)	Error correction S.M. correction: Page 6-8, 6-35	Yes
1.4	2004.05	Correction-3	Parts change due to termination of production of the IC. S.M. correction: Page 4-11, 4-12, 5-13, 5-15, 5-17, 6-28, 6-29	Yes

8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

TABLE OF CONTENTS

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

1-1. Cassette Compartment Block Assy ··· 3
1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed ··· 4

2. PERIODIC CHECK AND MAINTENANCE ITEMS

2-1. Rotary Drum Assy Cleaning ··· 5
2-2. Tape Path Cleaning ··· 5
2-3. Periodic Check Items ··· 6
2-4. Service Tool List ··· 7

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy ··· 8
3-2. Drum Assy ··· 9
3-3. Drum Base Block Assy, Shaft Ground ··· 10
3-4. Gooseneck Retainer, Gooseneck Gear Assy ··· 11
3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy ··· 12
3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy ··· 15
3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm ··· 16
3-8. Pinch Arm Assy, TG4 Arm Block Assy ··· 17
3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide ··· 18
3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail ··· 19
3-11. DC Motor Assy (Loading) ··· 21
3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy ··· 22
3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate ··· 23
3-14. Cam Gear ··· 24
3-15. GL Slider Assy, GL Arm ··· 25
3-16. Rotary Switch ··· 26
3-17. Capstan Motor ··· 27
3-18. Tension Regulator Position Adjustment ··· 28
3-19. FWD Tape Hold -Back Tension Adjustment ··· 29

4. TAPE PATH ADJUSTMENT

4-1. Preparations for Adjustment ··· 30
4-2. Tracking Adjustment ··· 31
4-3. No. 4 Guide (TG-4) Adjustment ··· 31
4-4. CUE, REV Waveforms Check ··· 32
4-5. Checks After Adjustments ··· 32

5. EXPLODED VIEWS

5-1. Cassette Compartment Block Section ··· 34
5-2. LS Chassis Block Section ··· 35
5-3. Mechanism Chassis Block Section ··· 36

6. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM ··· 37

7. ELECTRICAL PARTS LIST ··· 38

For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the "DISASSEMBLY" section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the $\boxed{\text{USE}}$ mode of operation. (Refer to the "Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the $\boxed{\text{USE}}$ mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

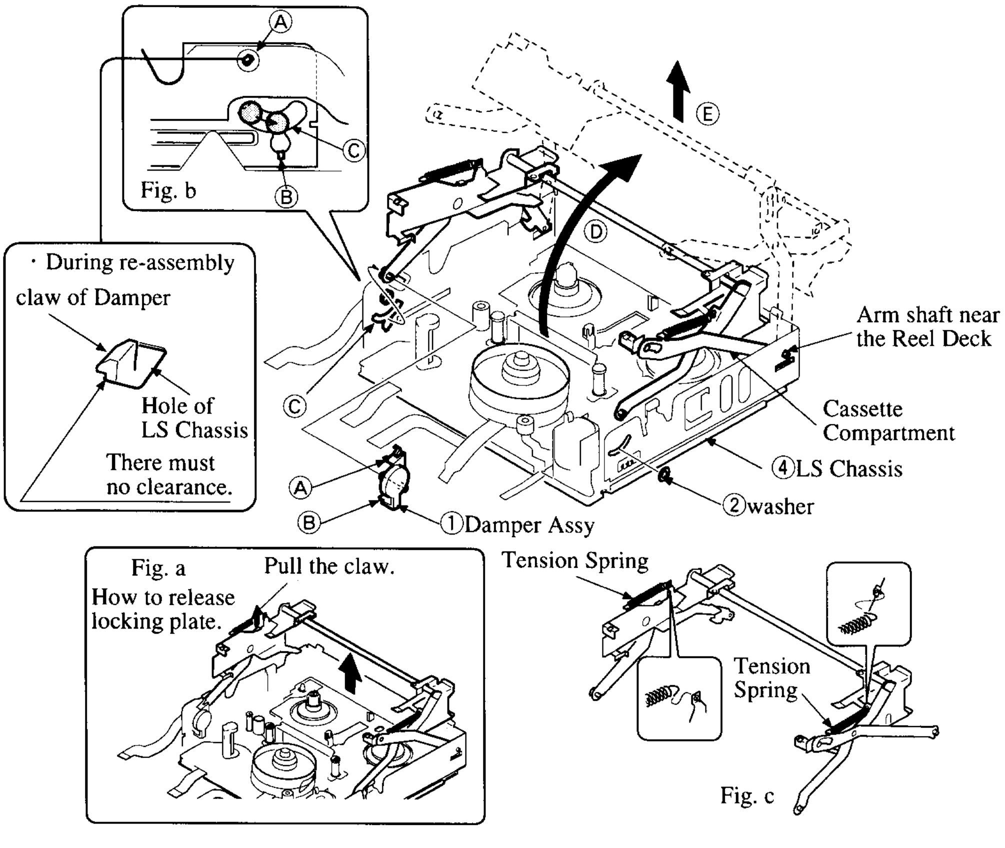

Ⓐ
Ⓒ
Fig. b
Ⓑ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Ⓓ
Ⓔ
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

> Example of establishing the TEST mode: model CCD-TR420E/TR440E.
> Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection.
> Select page: 7, address: 01, set data: 01 and press the PAUSE button.
> After tape loading or other desired operations of mechanism are completed, be sure to perform the following:
> Select page: F, address: 01, set data :00 and press the PAUSE button.
> Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

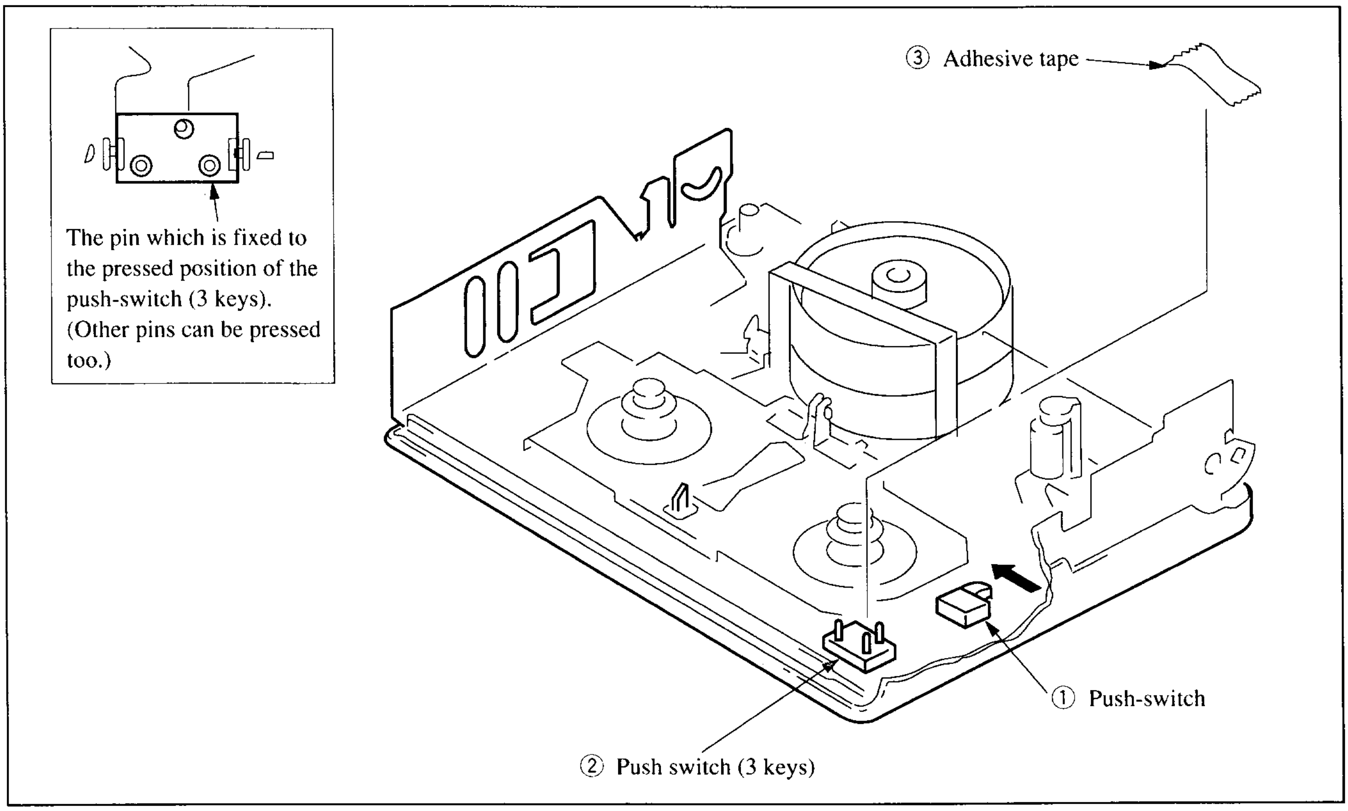

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

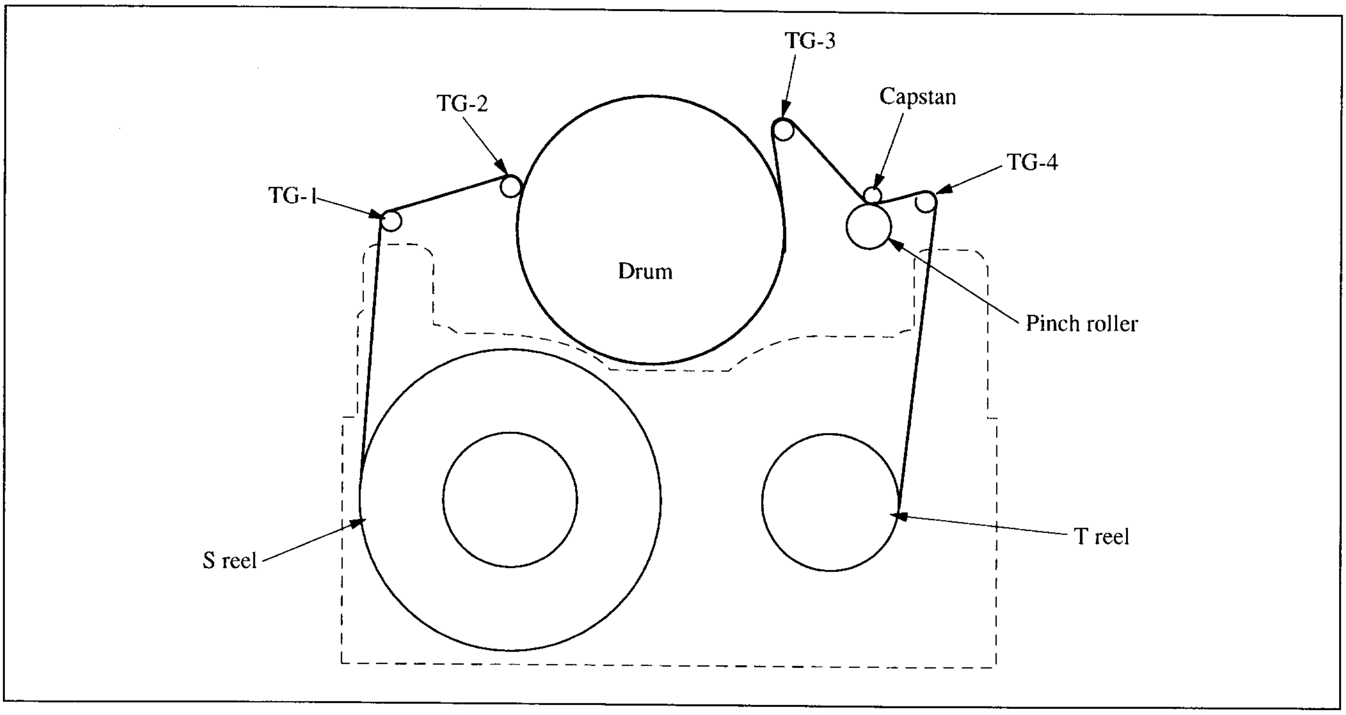


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD } Torque RVS } Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

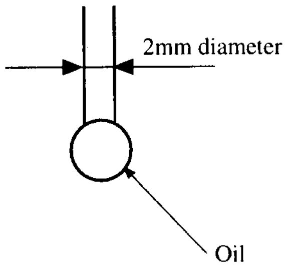


Fig. 4

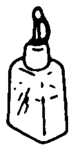
2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	——	
J-2	Cleaning piece	2-034-697-00	——	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		——	
J-4	Head demagnetizer	Commercially available	——	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	——	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	——	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	——	
J-10	Remote commander for adjustment	J-6082-053-B	——	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	——	
J-12	FLOIL Grease SG-941	7-662-001-39	——	
J-13	FLOIL Grease SG-055G	7-651-000-09	——	

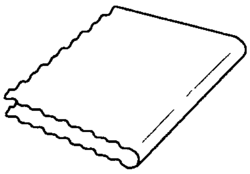
Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

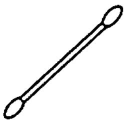
J-1



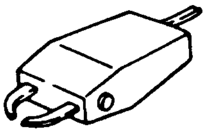
J-2



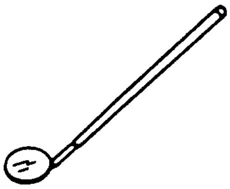
J-3



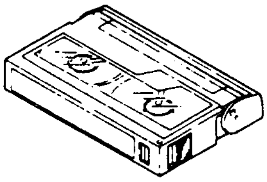
J-4



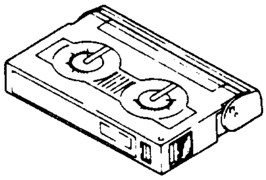
J-5



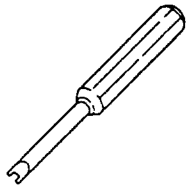
J-6



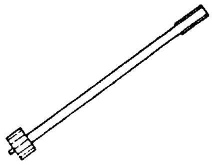
J-7



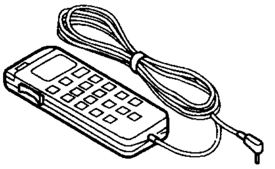
J-8



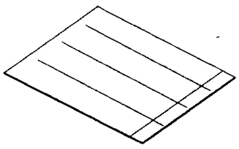
J-9



J-10



J-11



J-12

J-13

7-651-000-09
SG-055G

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

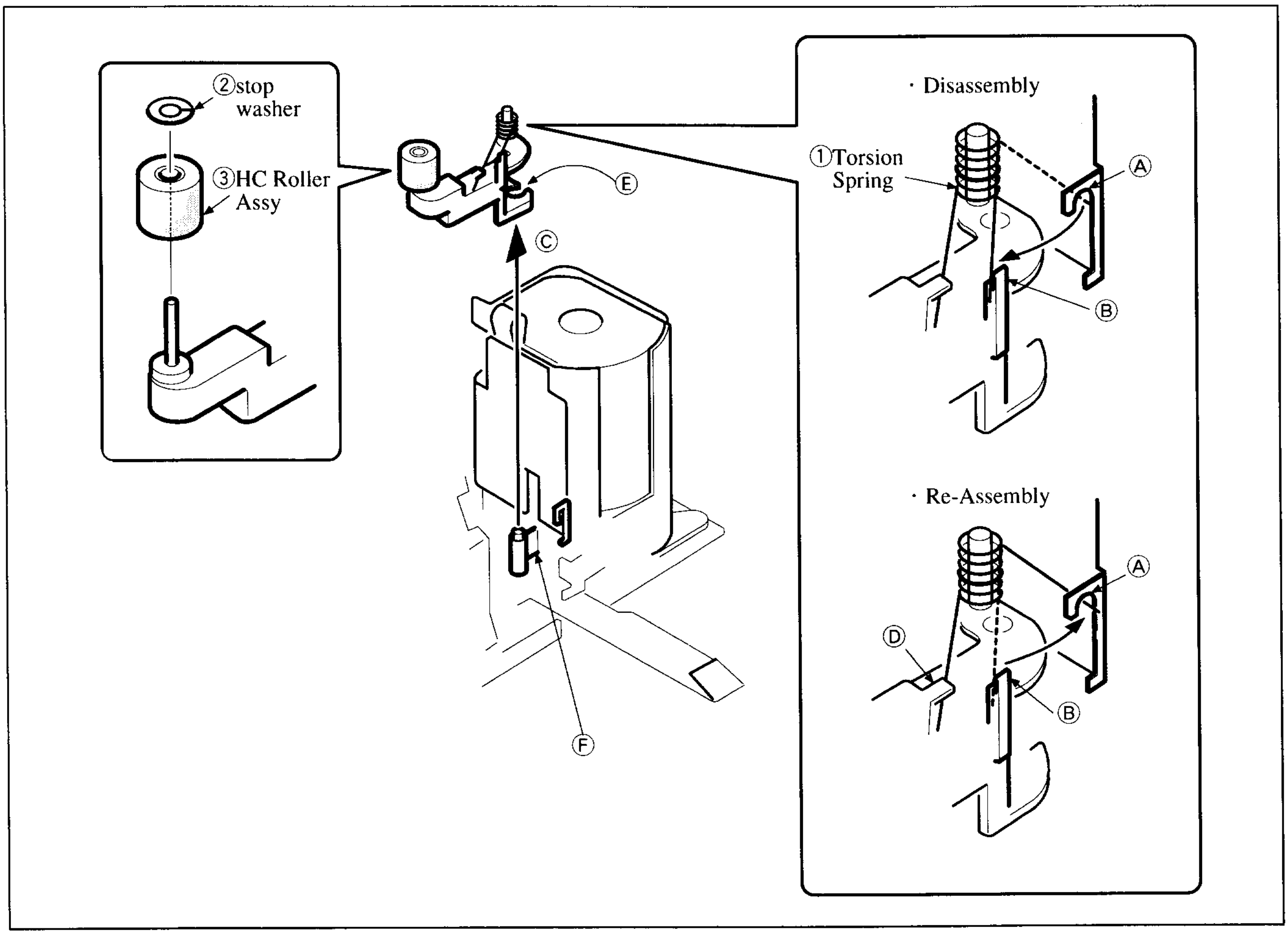

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓓ
Ⓐ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

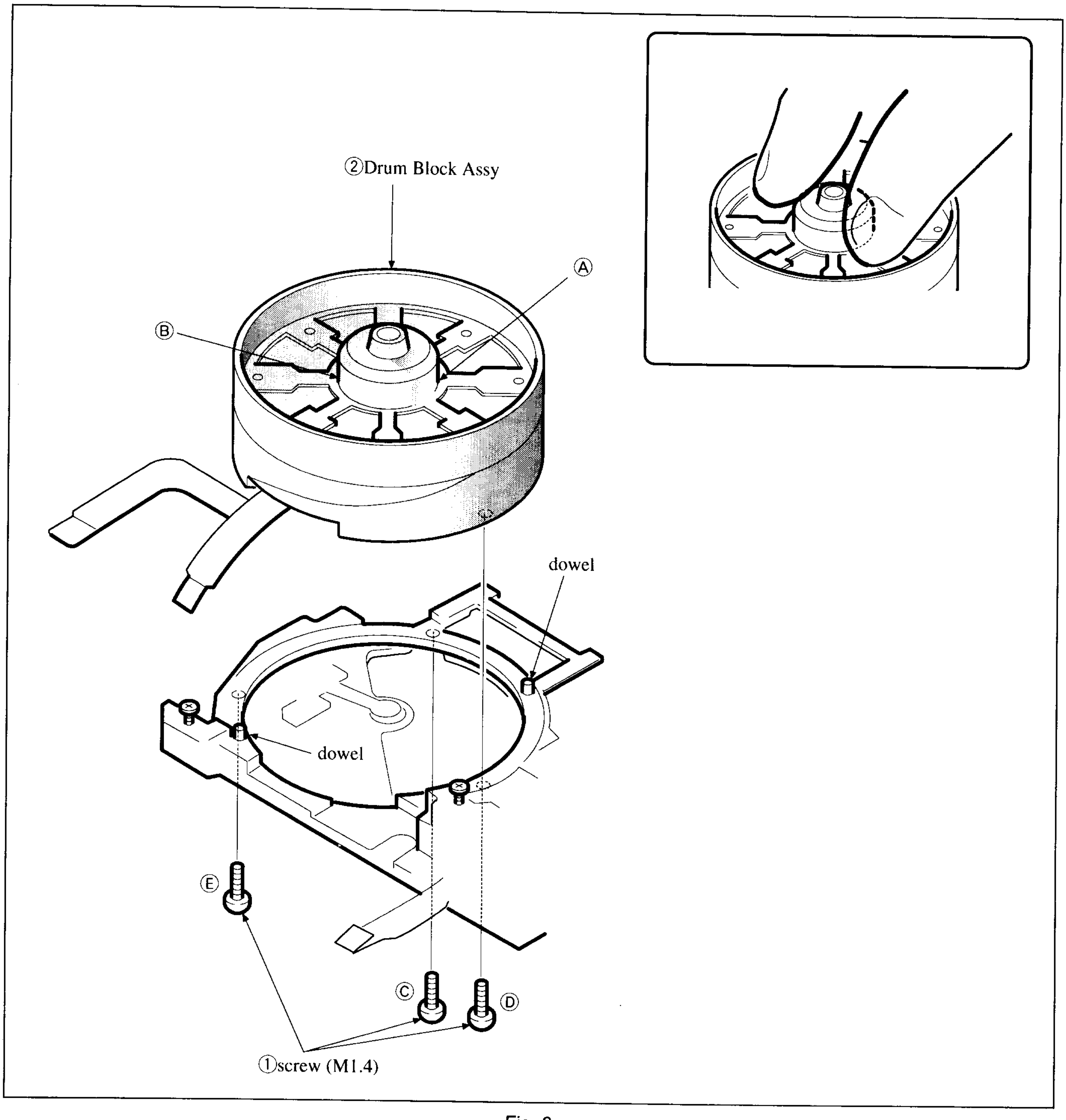


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

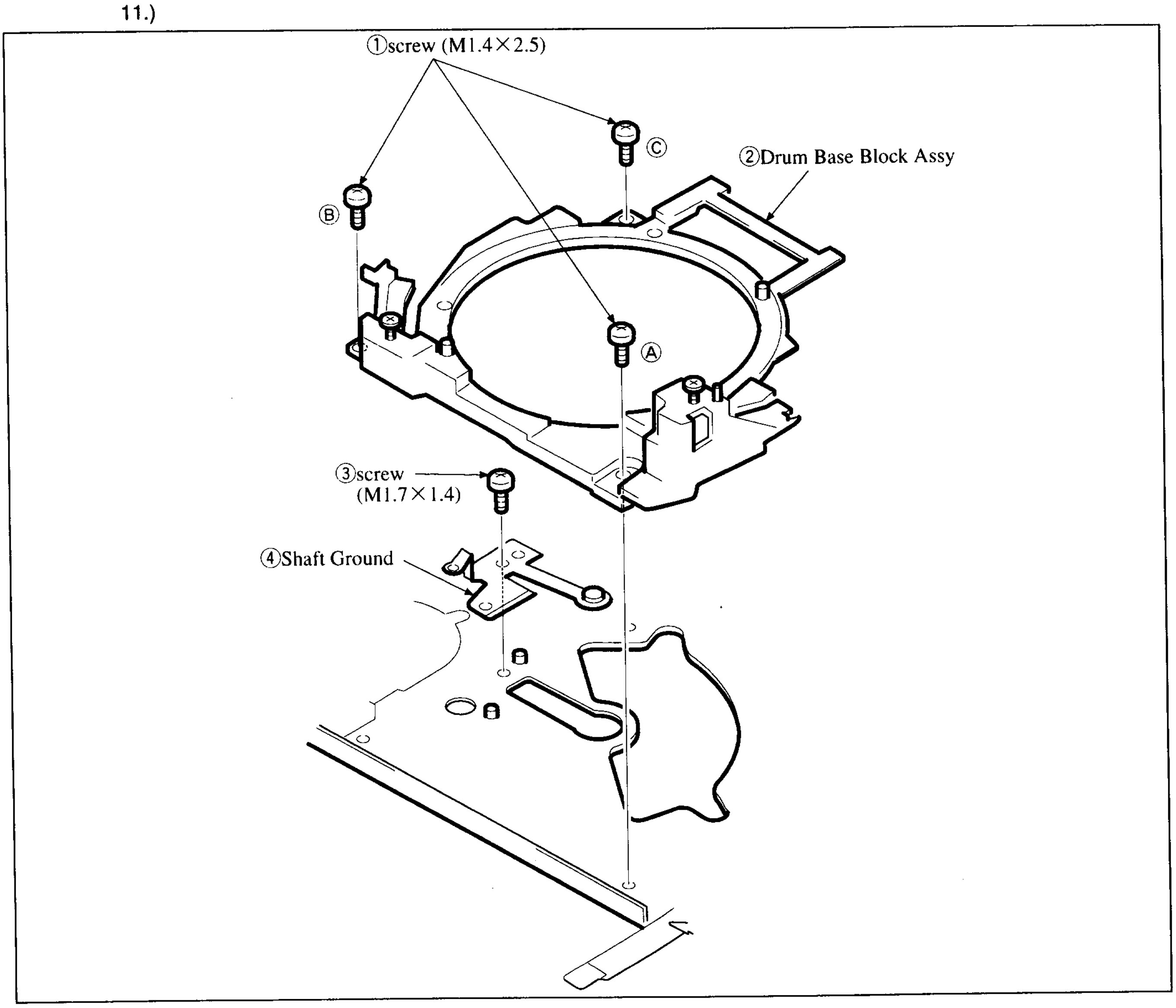


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
   (Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

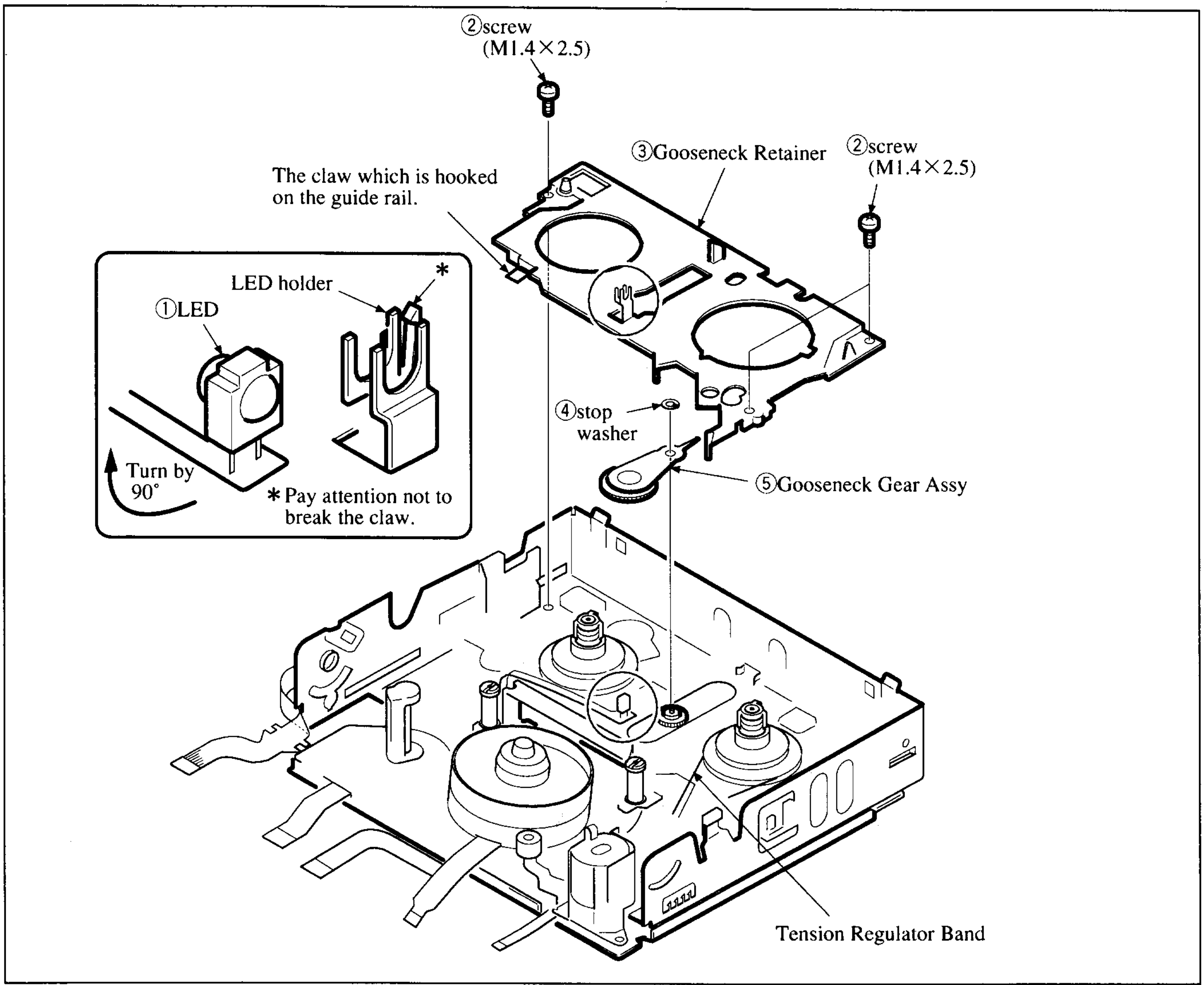

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

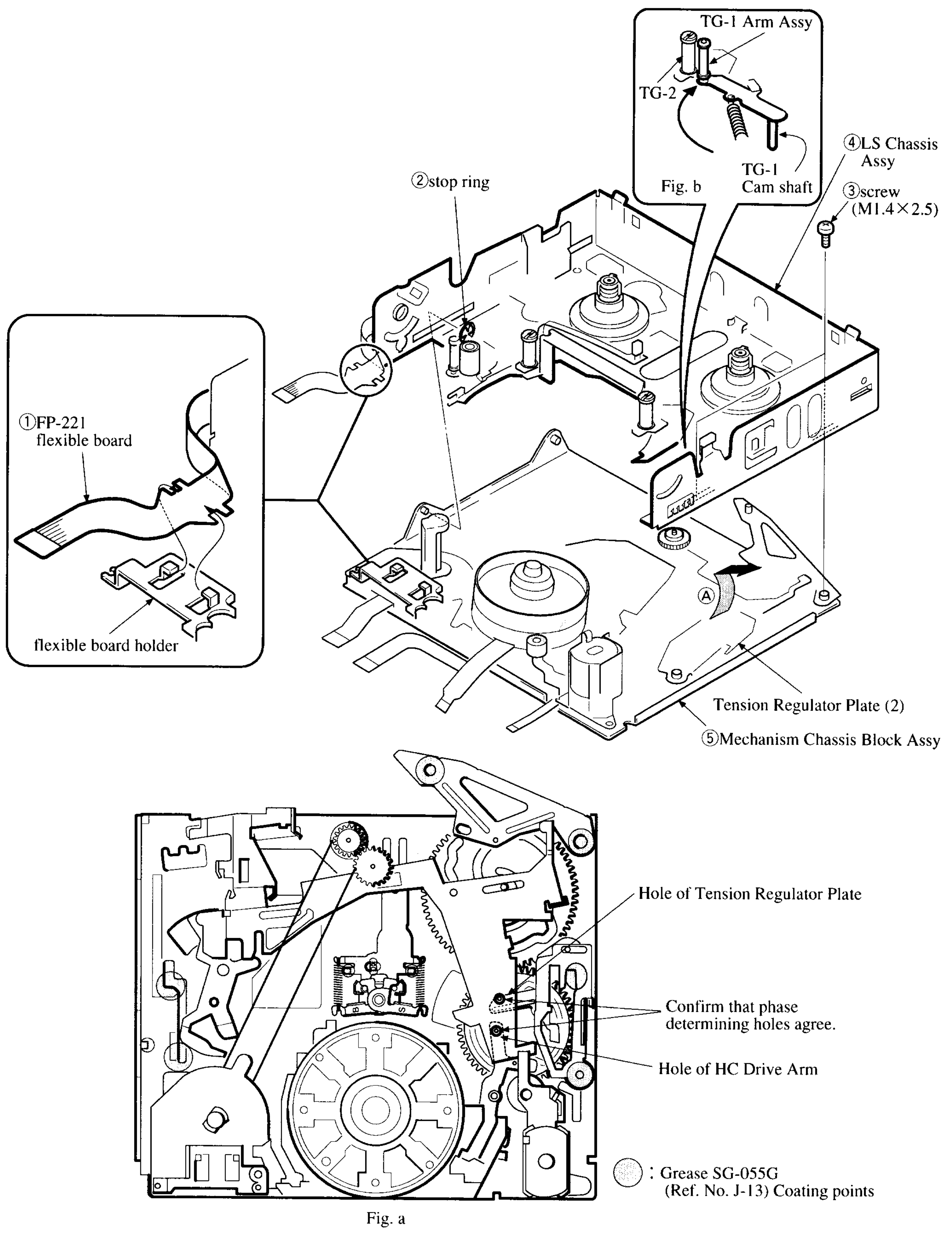

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
④LS Chassis Assy
③screw (M1.4×2.5)
②stop ring
①FP-221 flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G (Ref. No. J-13) Coating points

Fig. b

Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

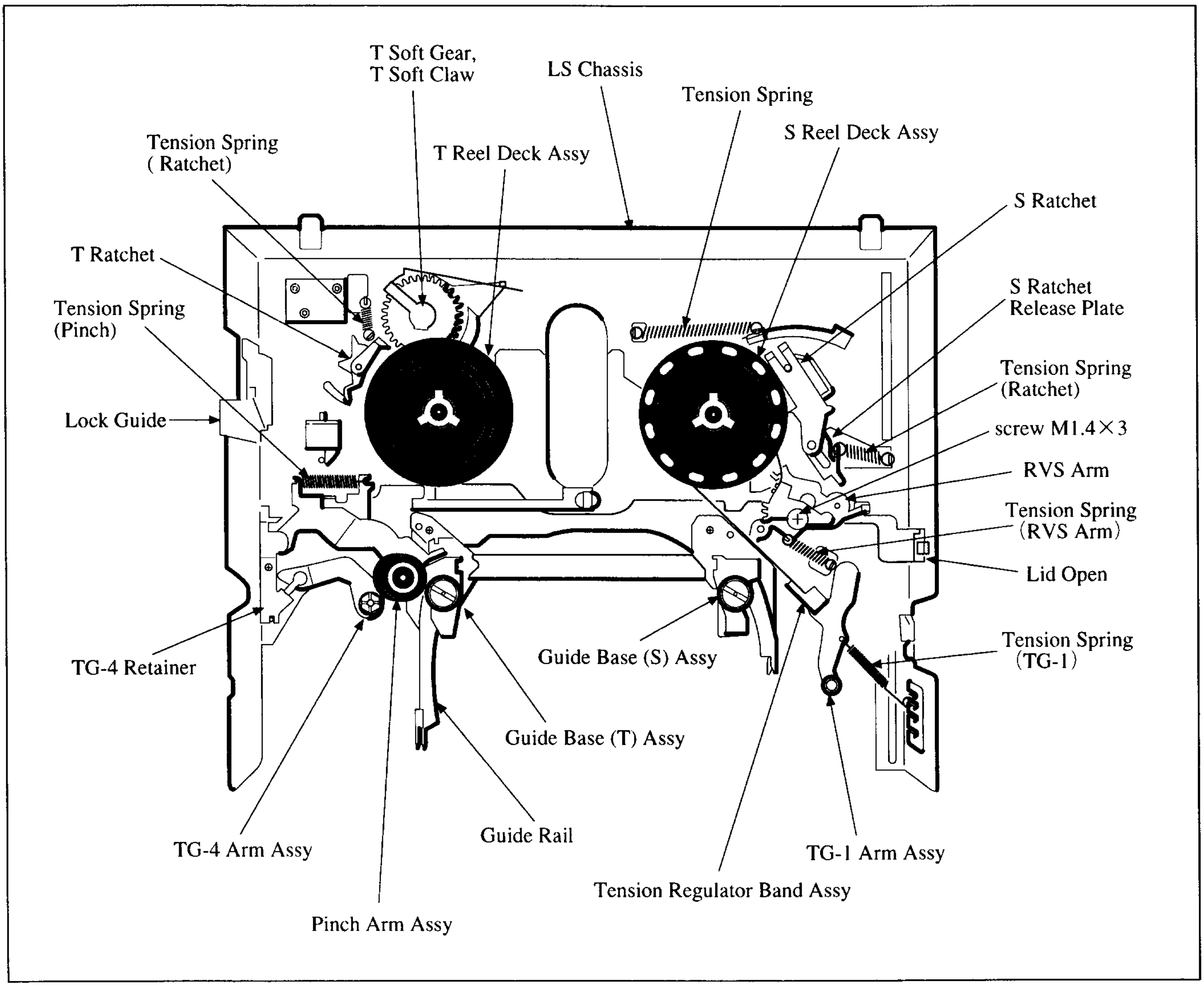

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
Tension Spring
(Pinch)
S Ratchet
Release Plate
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
Tension Spring
(TG-1)
TG-4 Retainer
Guide Base (S) Assy
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

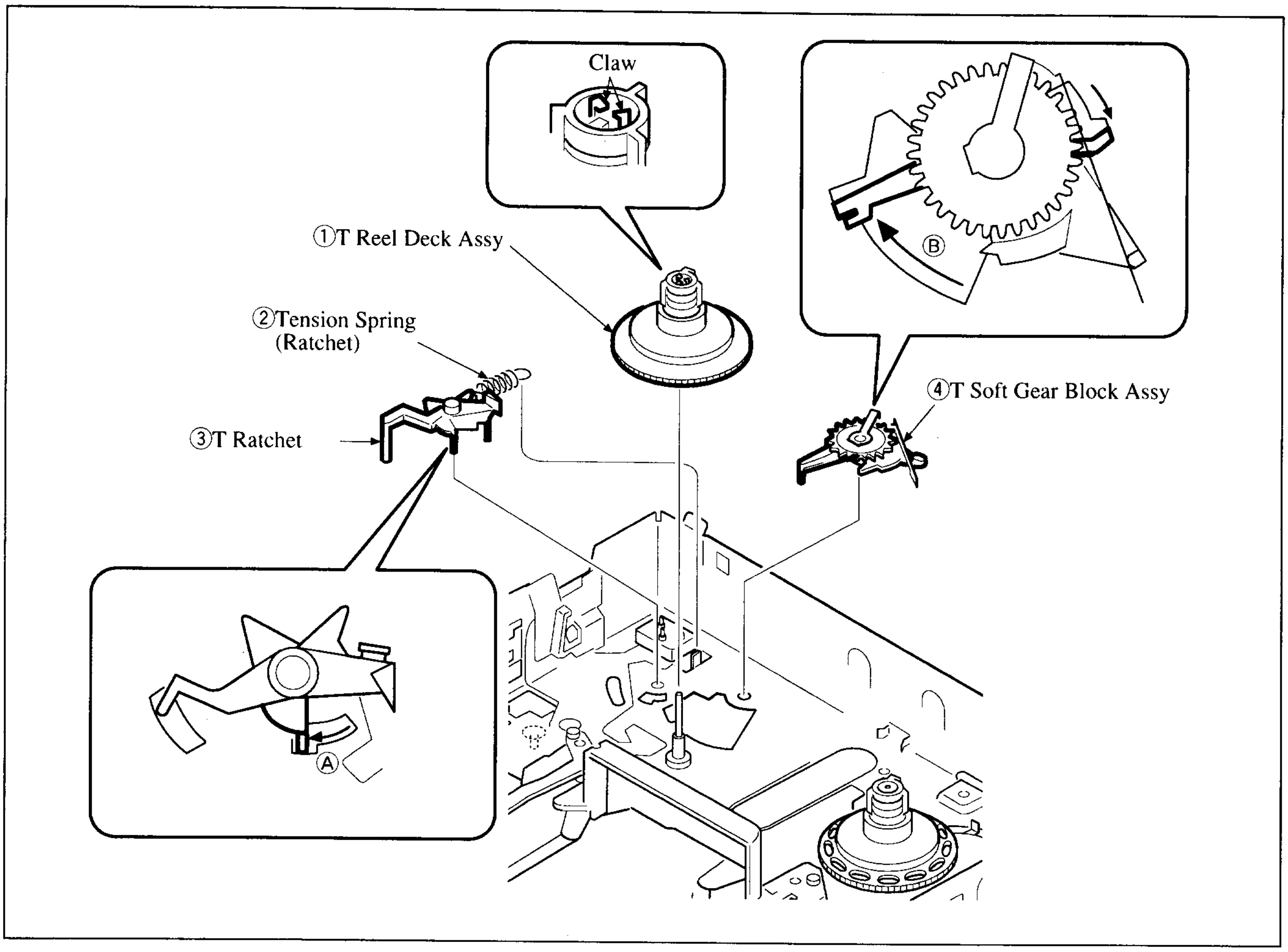


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

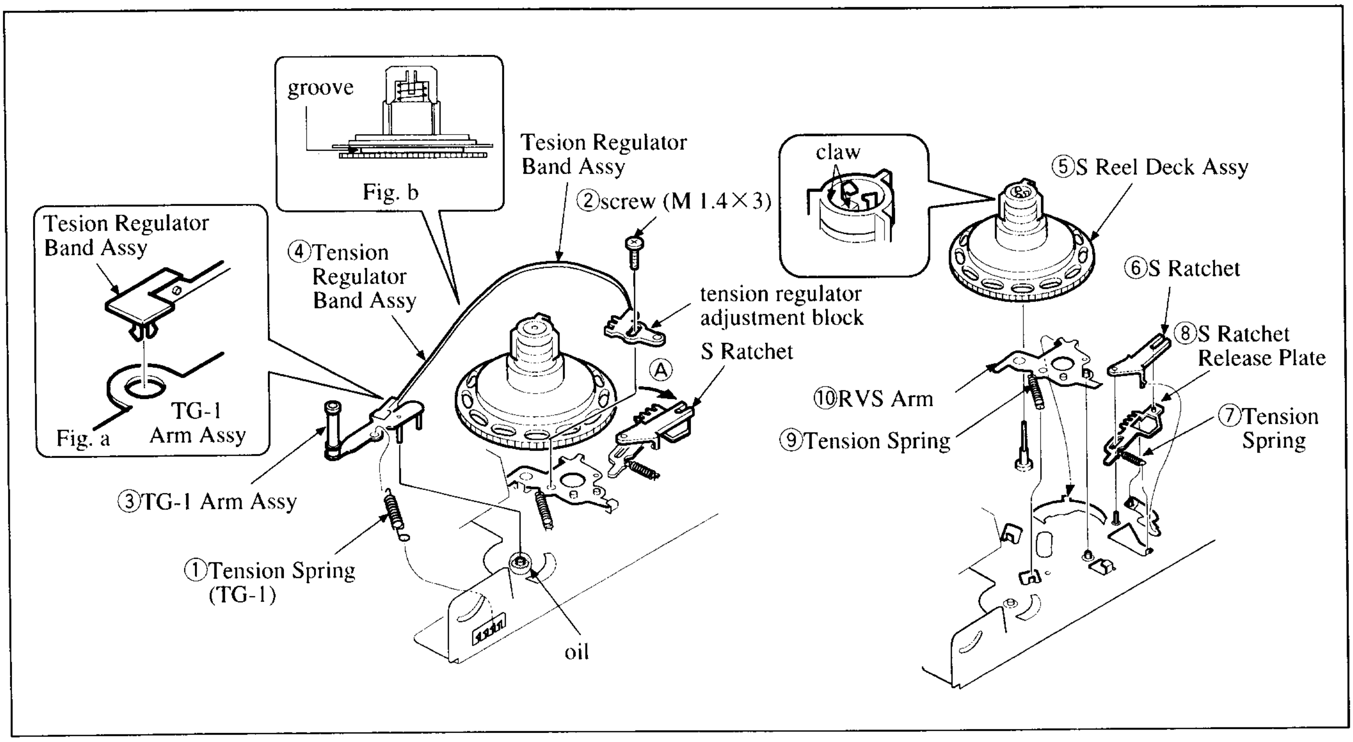

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
④Tension Regulator Band Assy
⑥S Ratchet
tension regulator adjustment block
S Ratchet
Ⓐ
⑧S Ratchet Release Plate
⑩RVS Arm
⑨Tension Spring
⑦Tension Spring
TG-1 Arm Assy
Fig. a
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

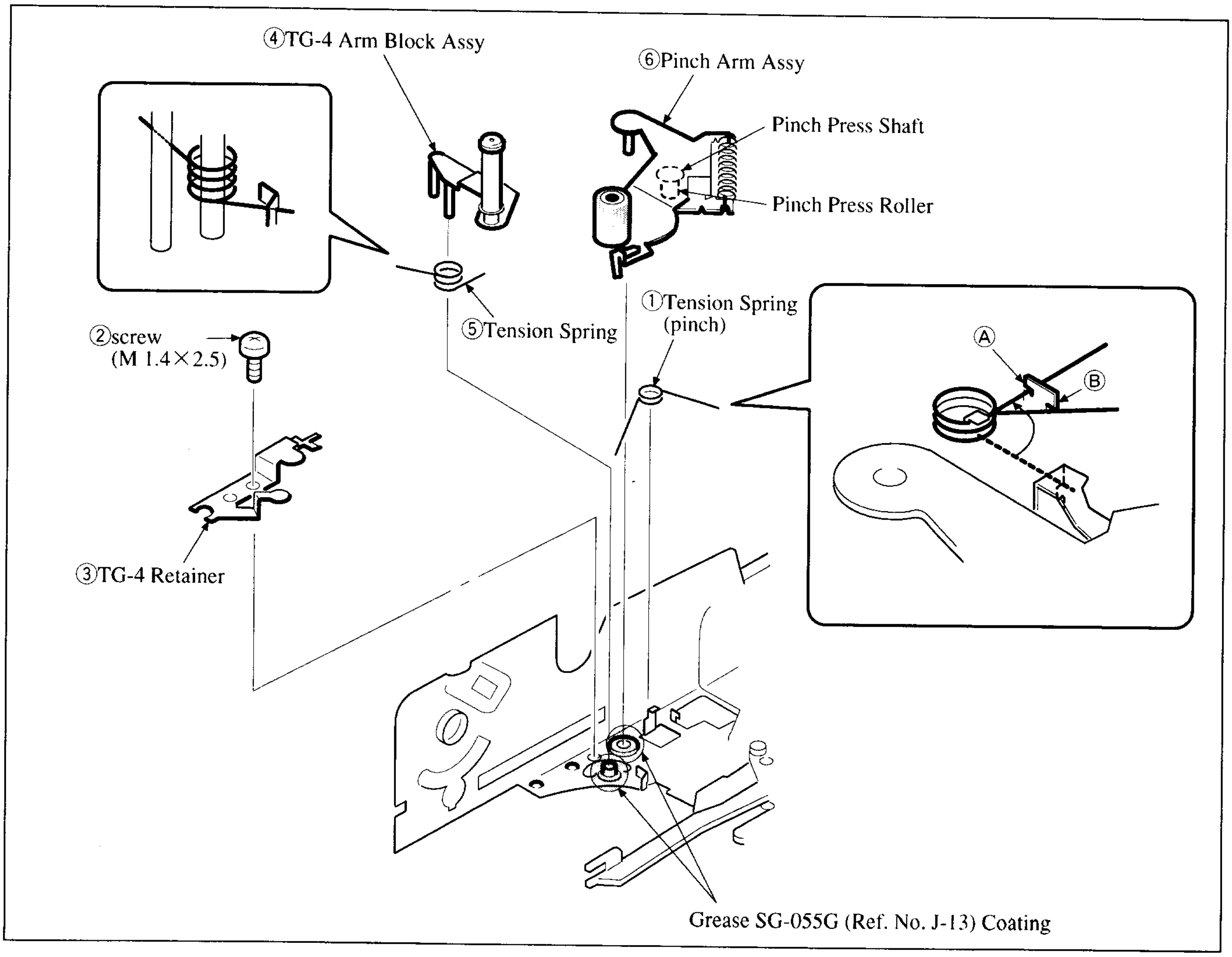

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
①Tension Spring (pinch)
⑤Tension Spring
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide
(Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
   In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.

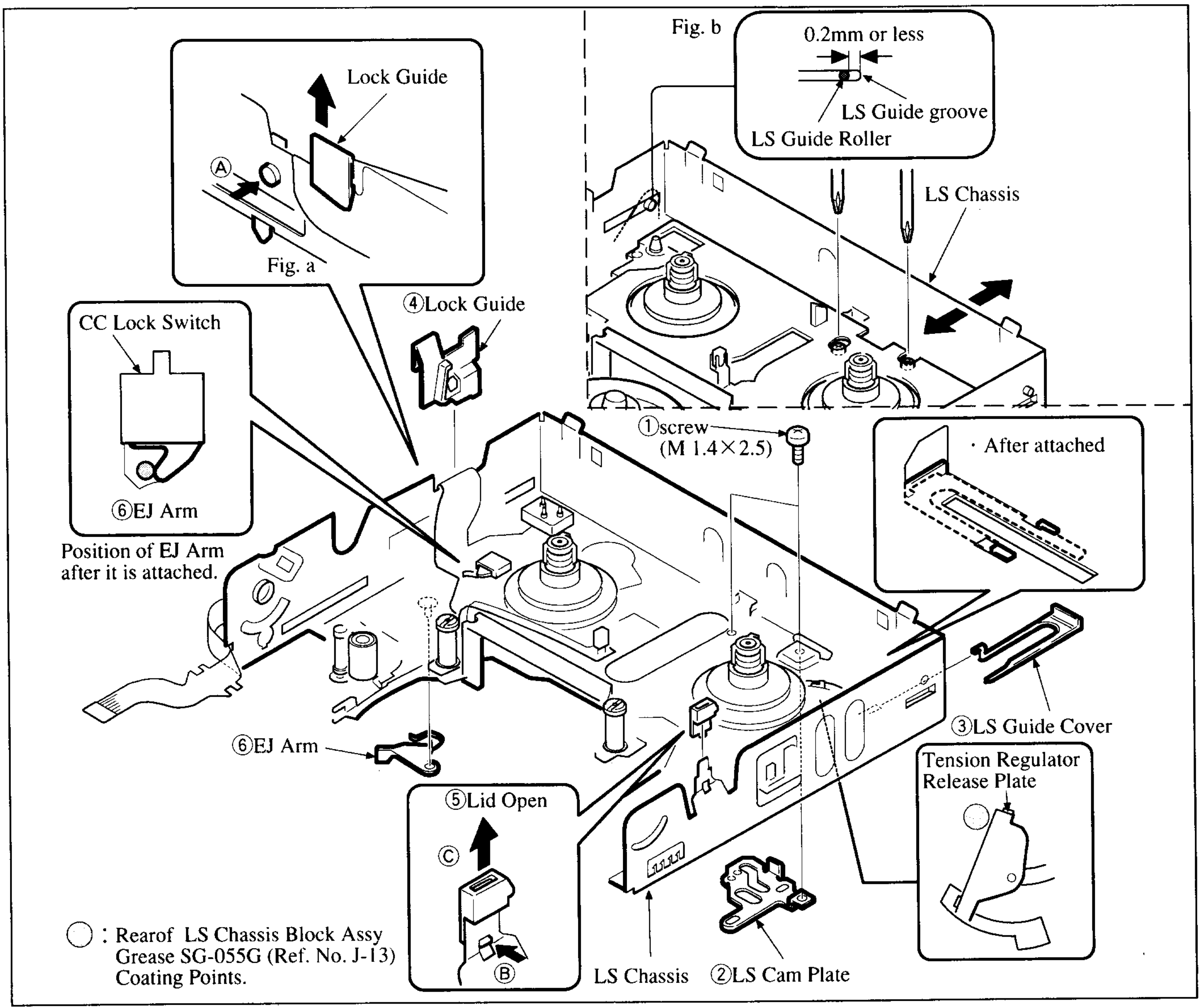

Lock Guide
Ⓐ
Fig. a
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
④Lock Guide
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
LS Chassis
②LS Cam Plate
○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

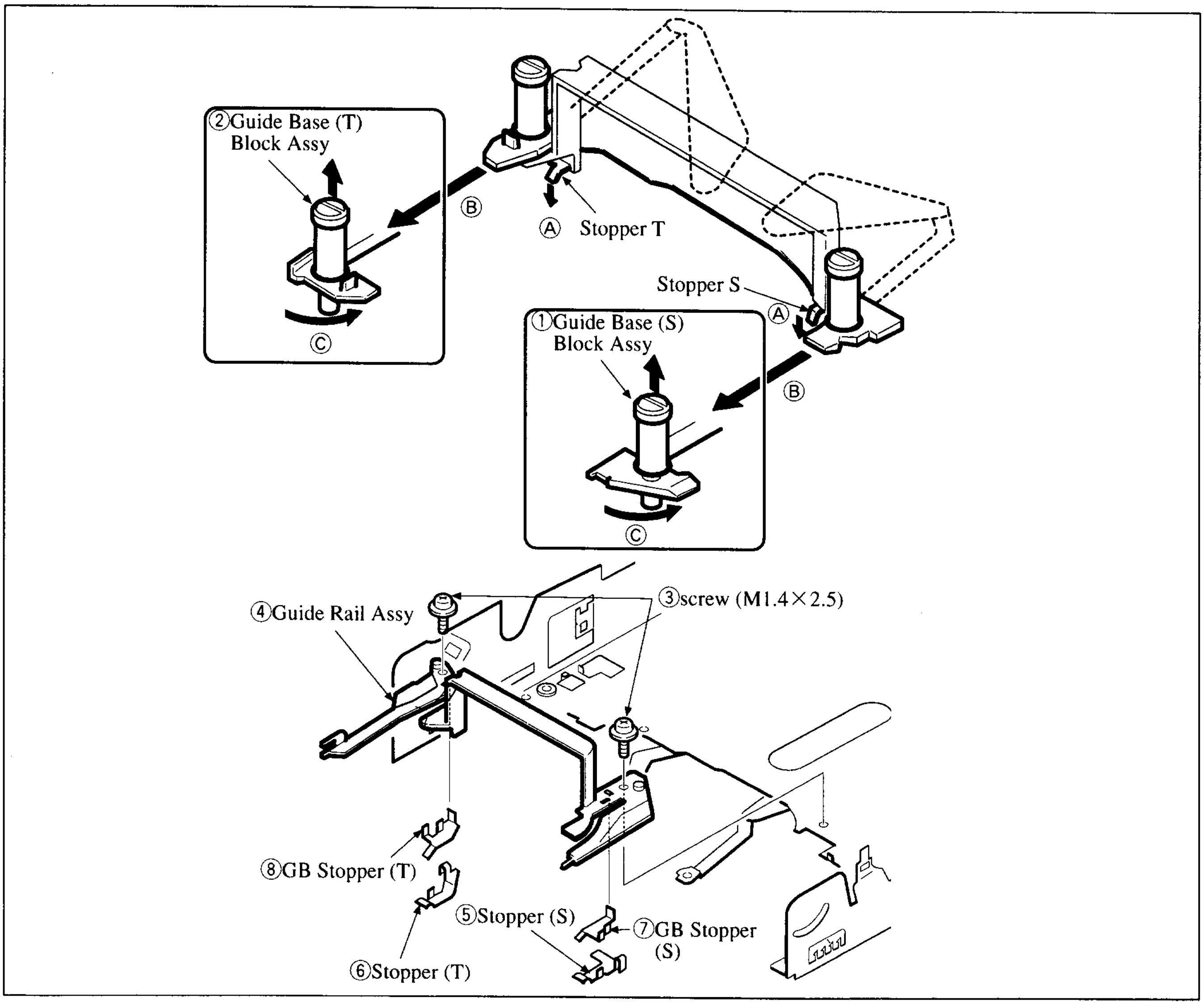

②Guide Base (T)
Block Assy
Ⓒ
Ⓑ
Ⓐ Stopper T
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper
(S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

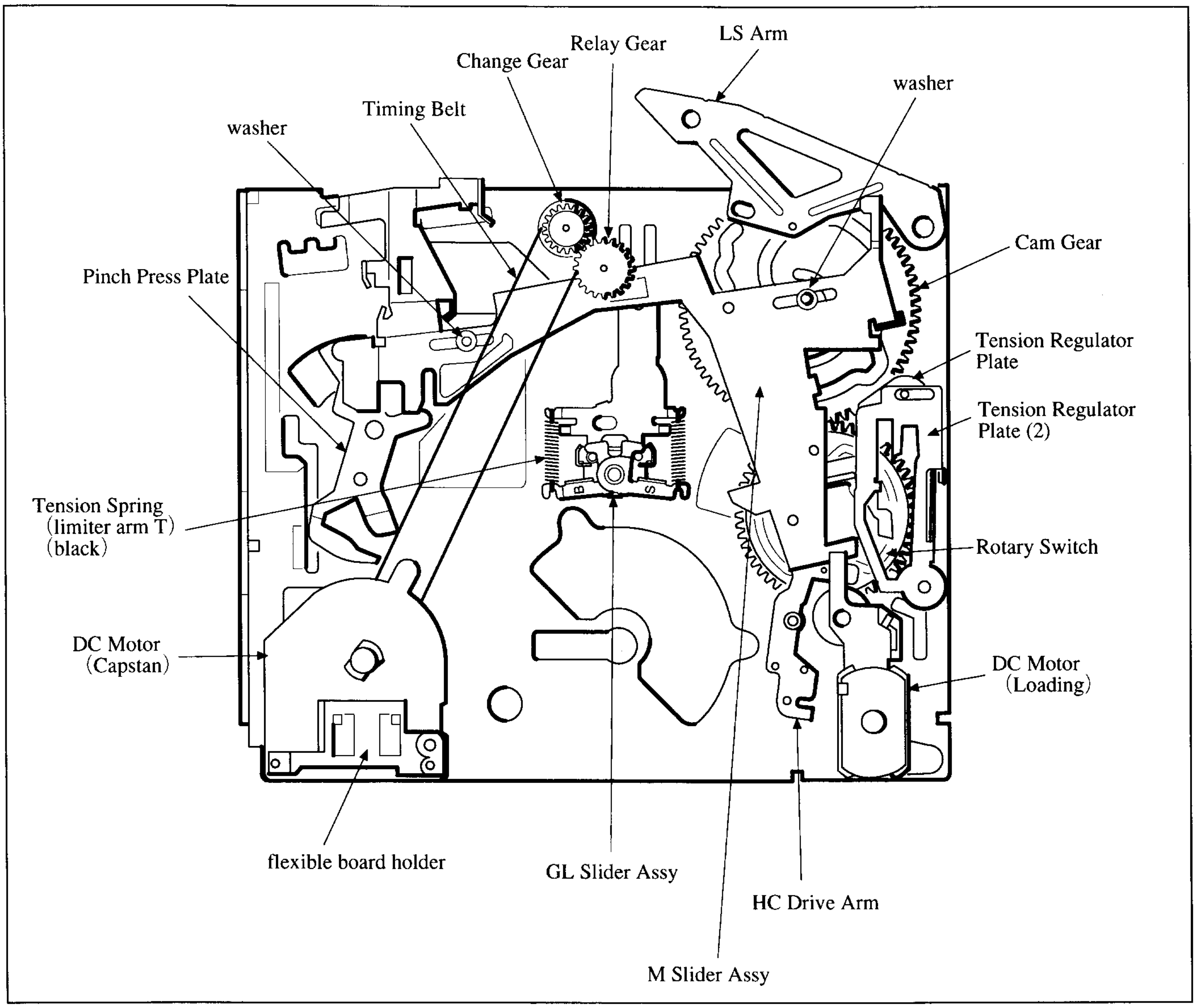

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading) (Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

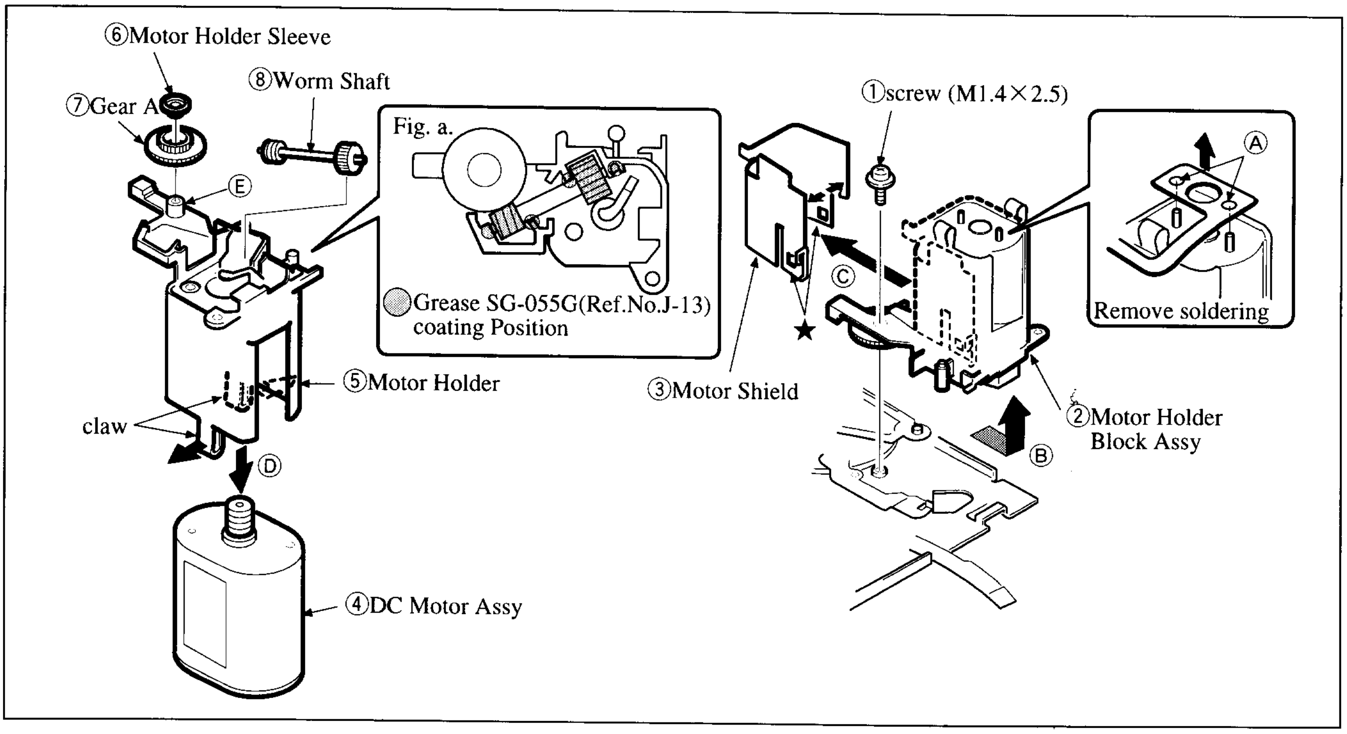

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
⑤Motor Holder
claw
Ⓓ
④DC Motor Assy
①screw (M1.4×2.5)
Ⓒ
★
③Motor Shield
Ⓐ
Remove soldering
②Motor Holder Block Assy
Ⓑ

Fig. 17

3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk * Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).

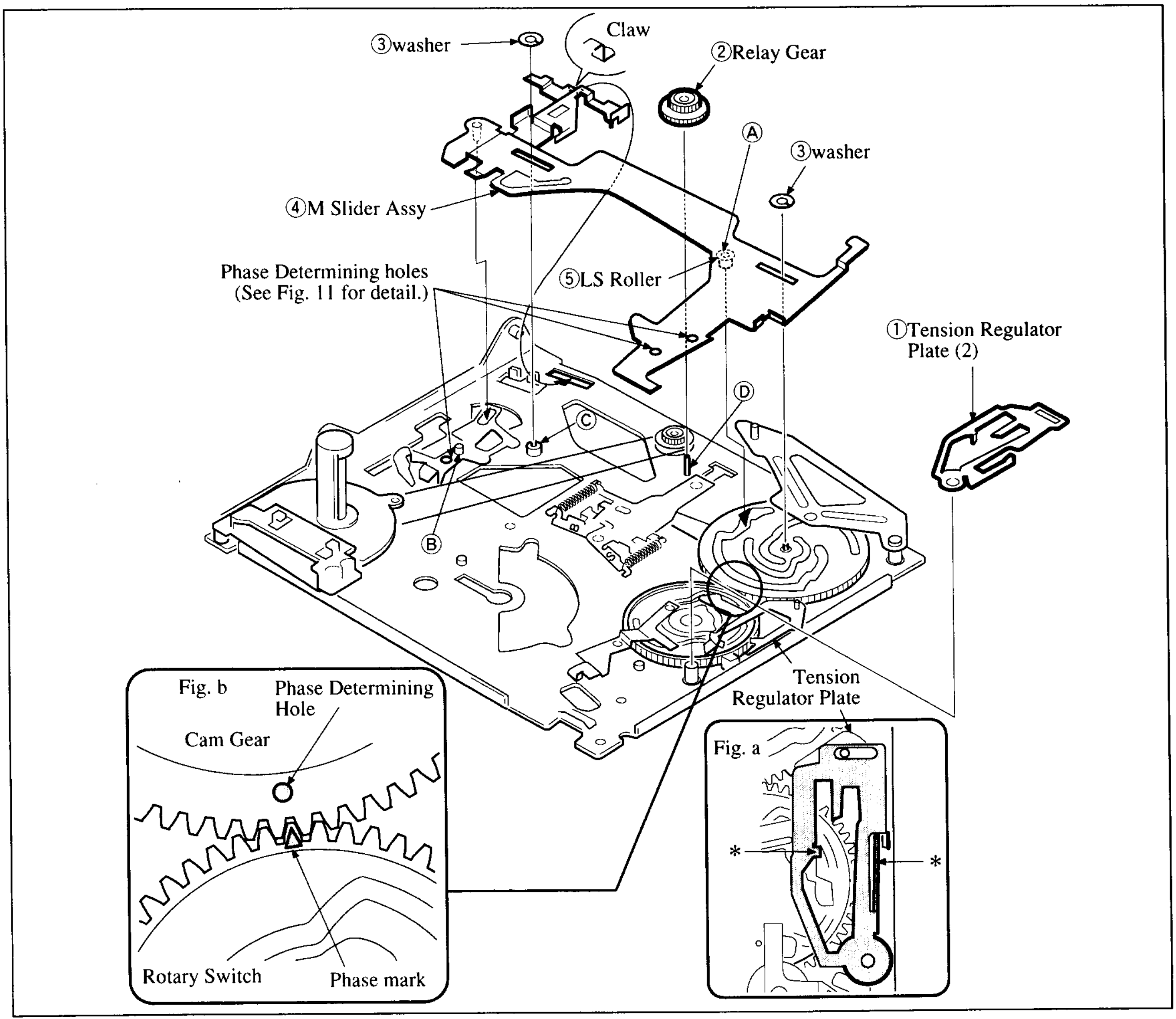

③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes
(See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator
Plate (2)
Ⓓ
Ⓒ
Ⓑ
Tension
Regulator Plate
Fig. b
Phase Determining
Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
*
*

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

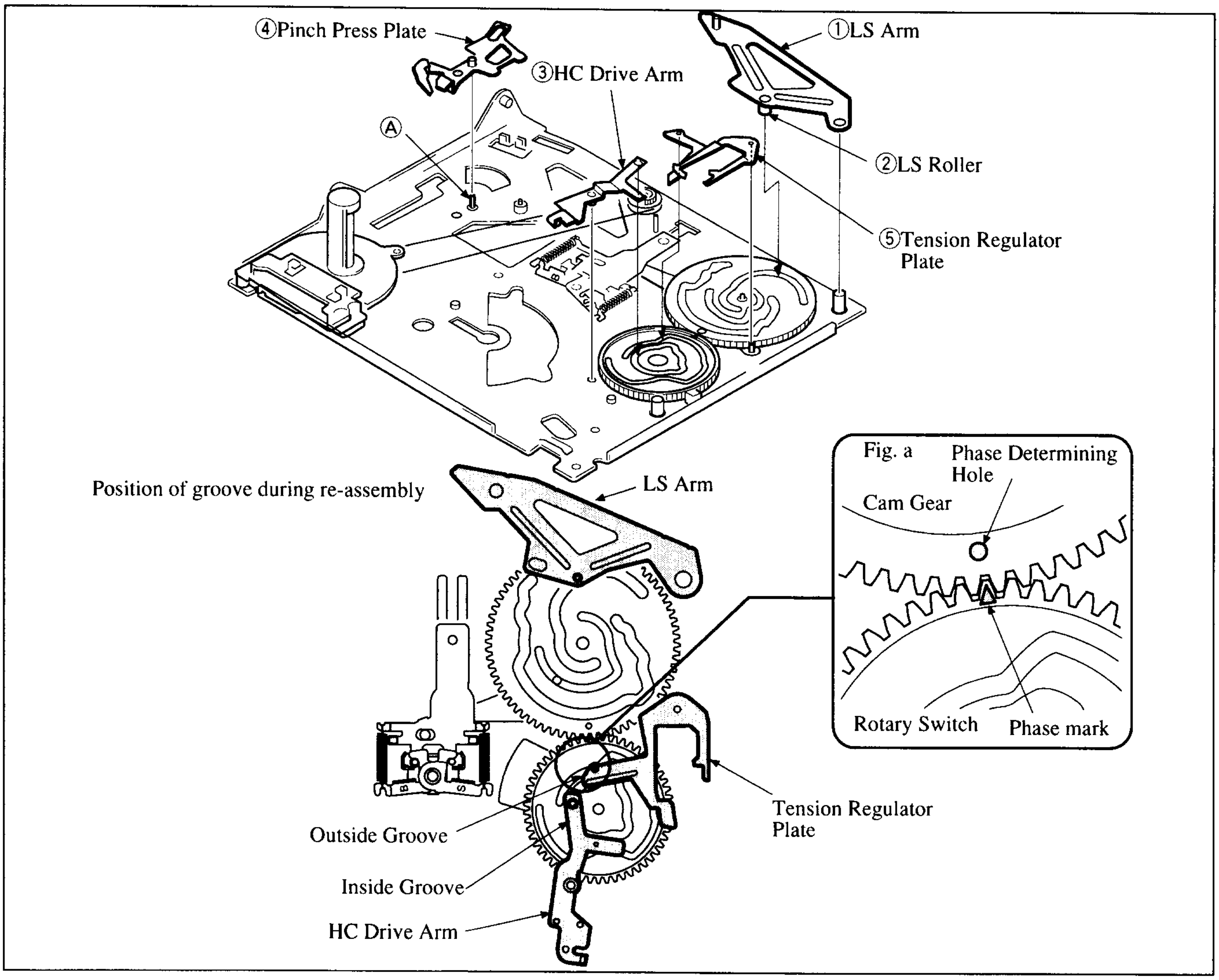

④Pinch Press Plate
①LS Arm
③HC Drive Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Position of groove during re-assembly
LS Arm
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

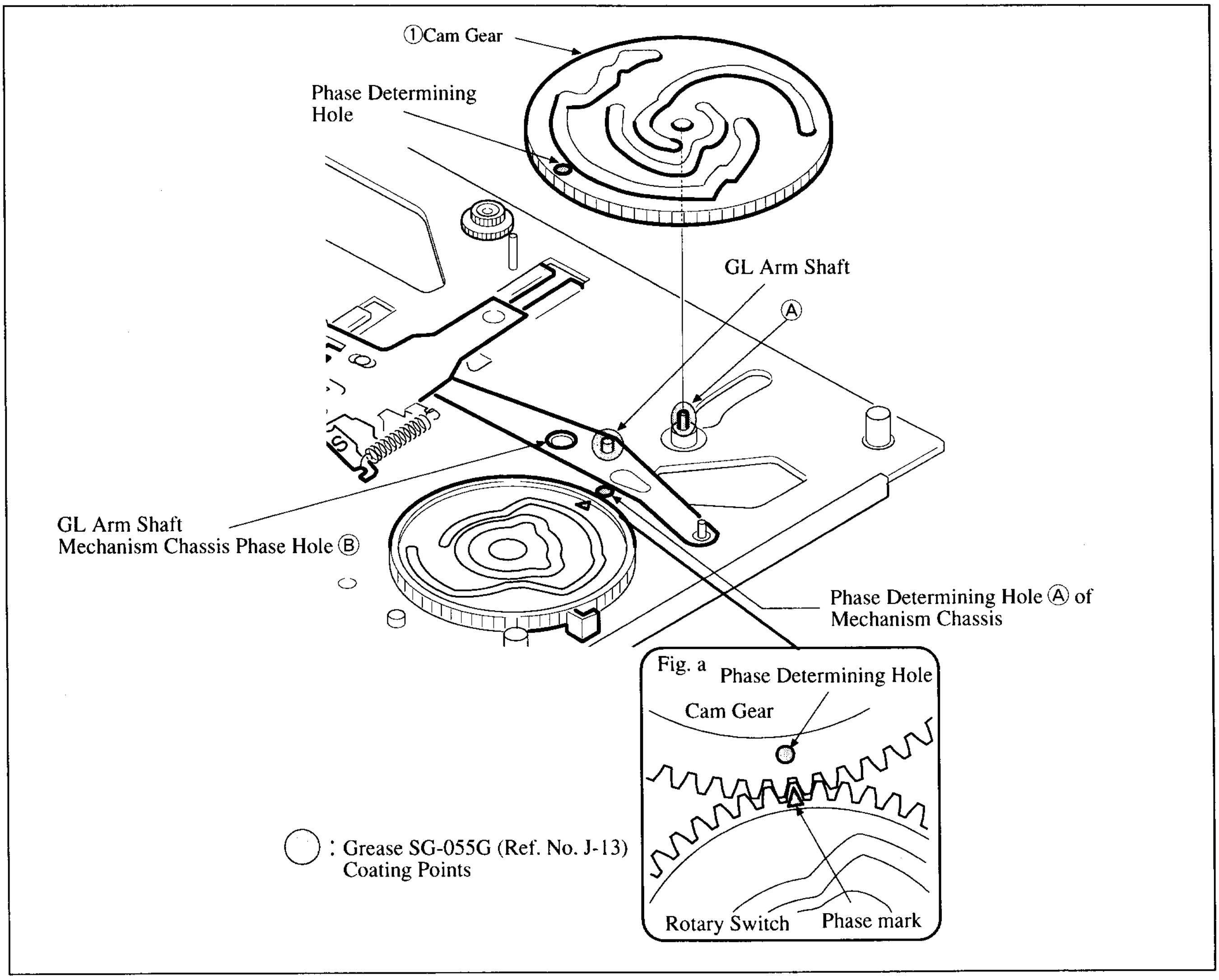

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

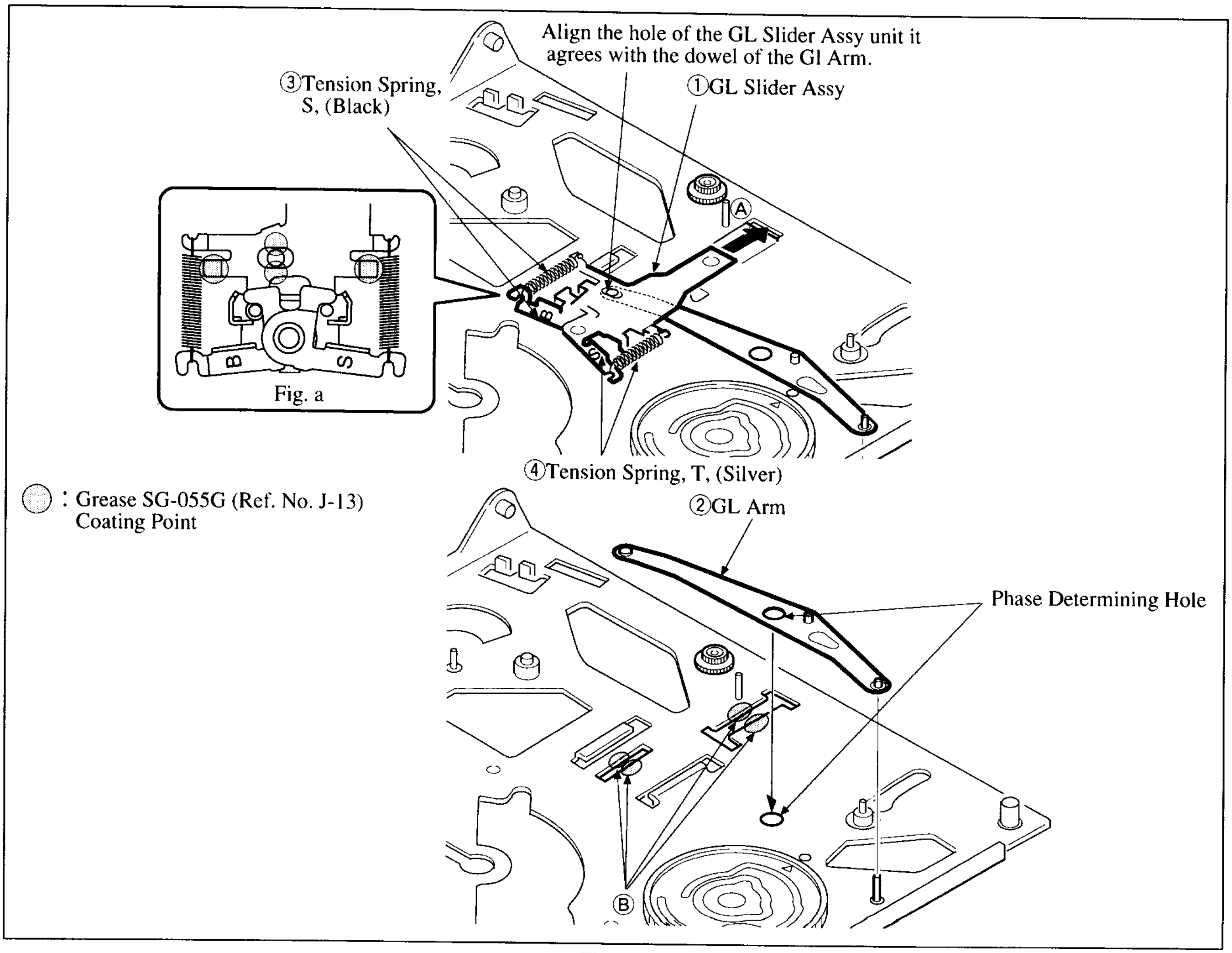

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
②GL Arm
Phase Determining Hole
Ⓑ
○ : Grease SG-055G (Ref. No. J-13) Coating Point

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

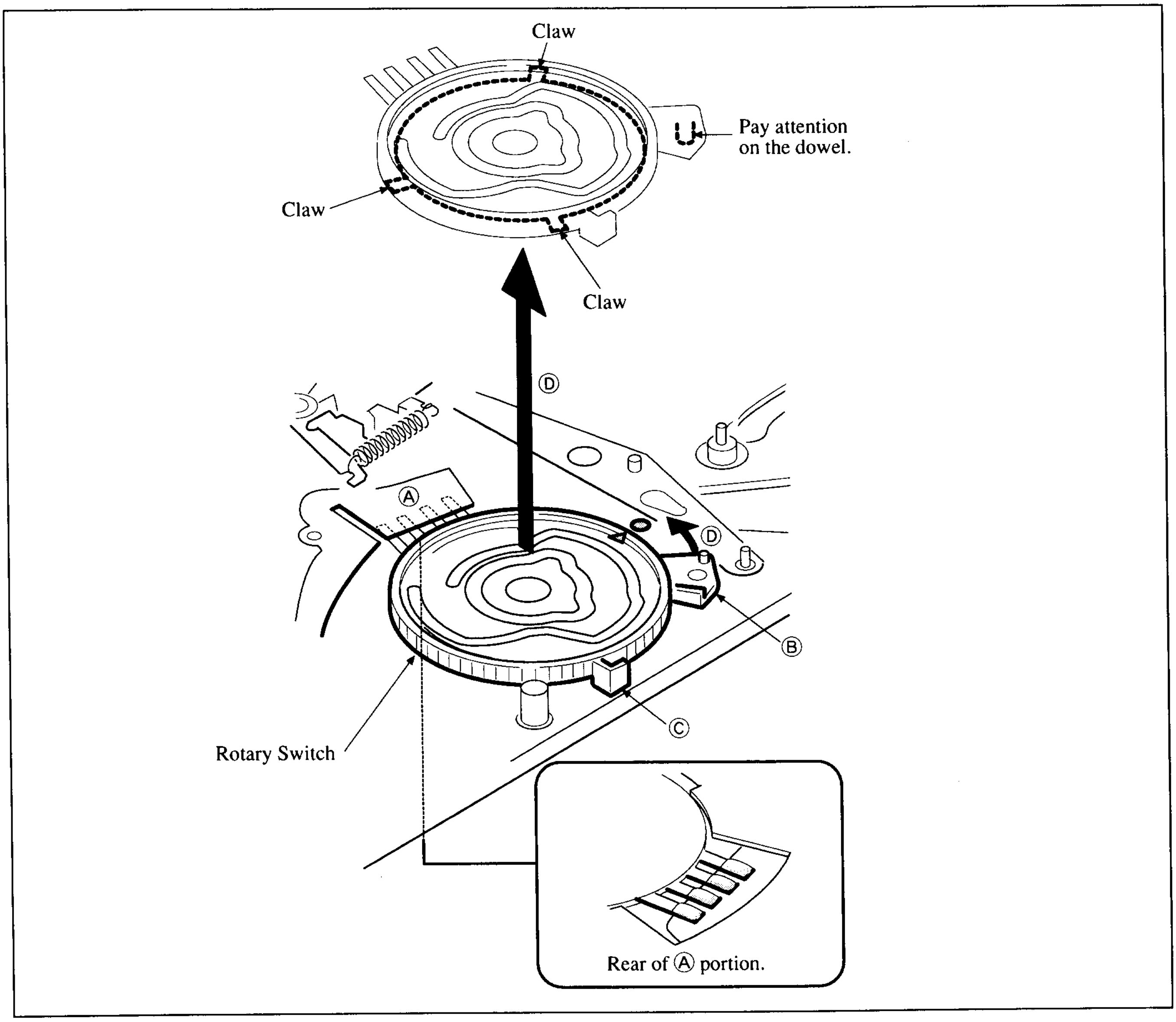


Fig. 22

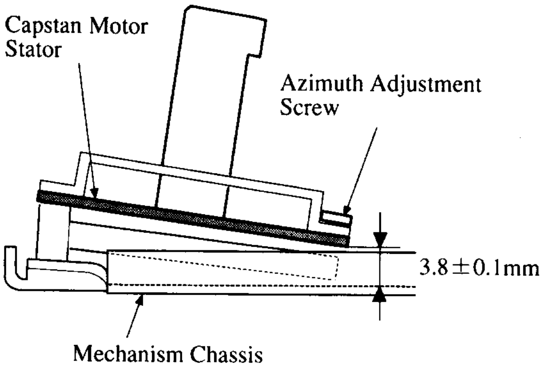
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

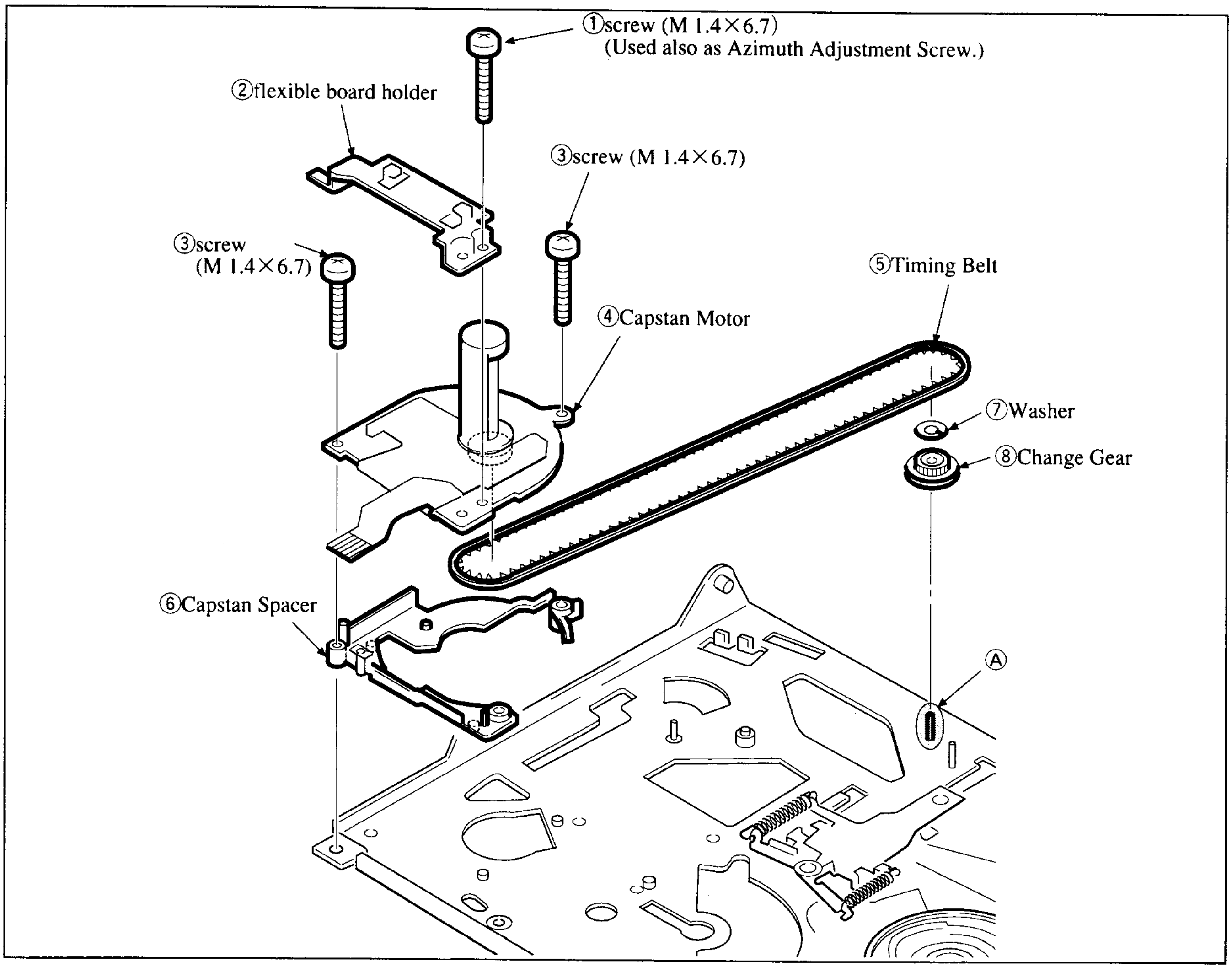

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

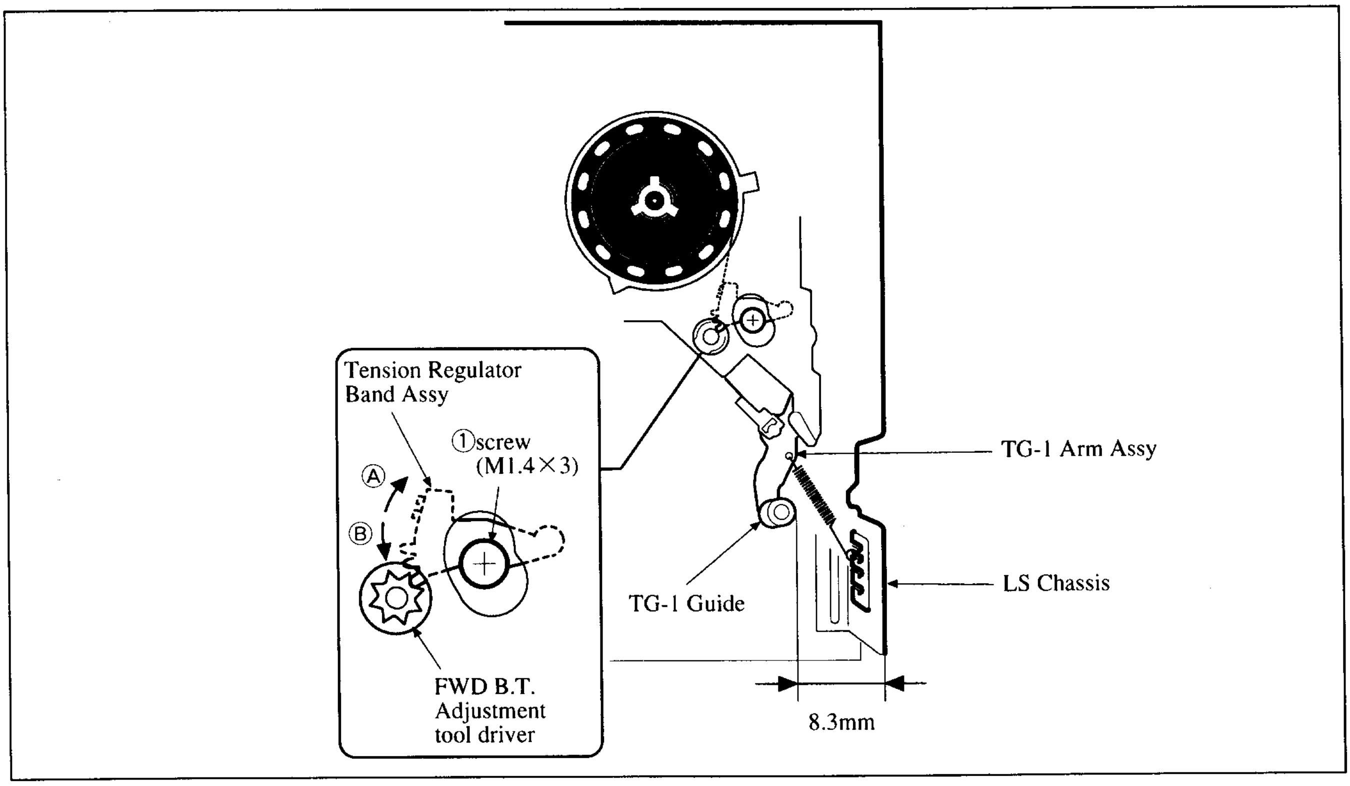

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

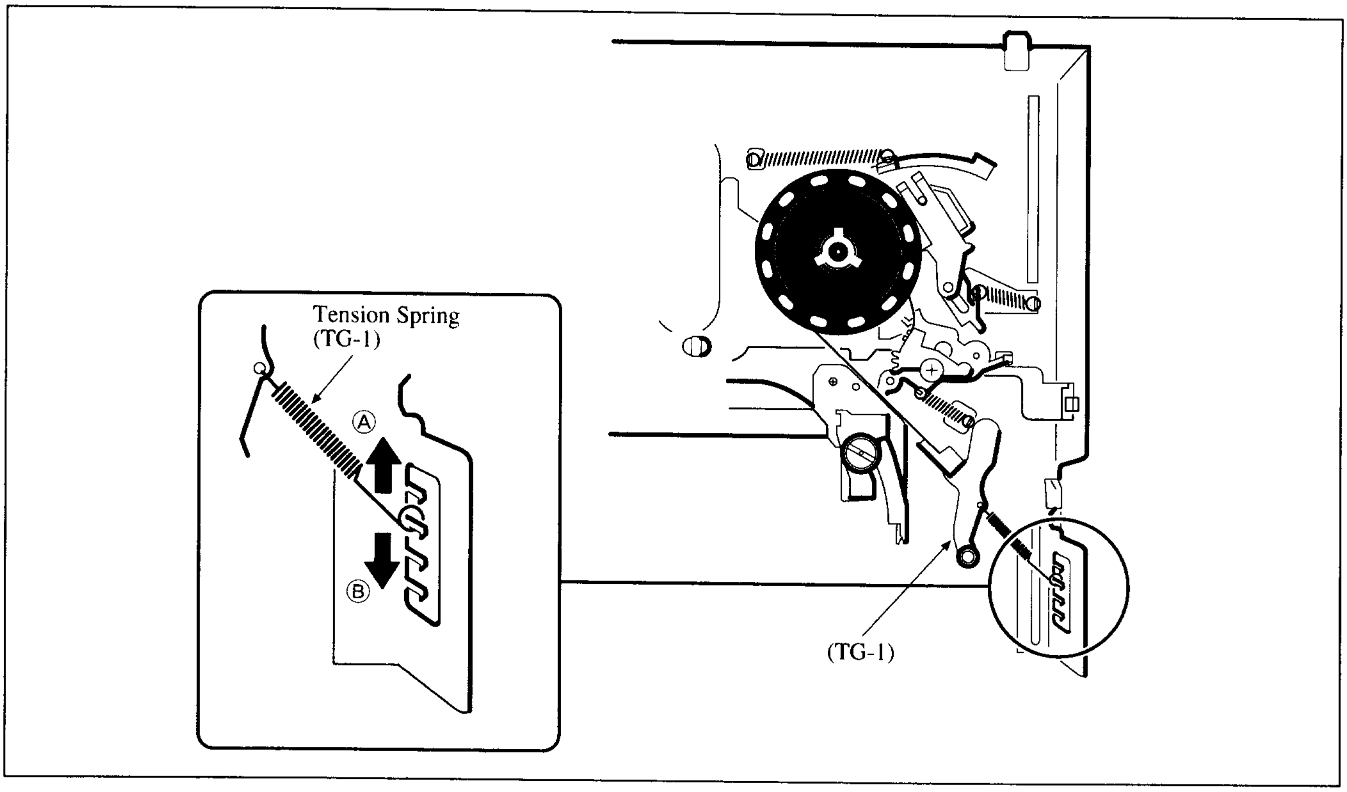


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

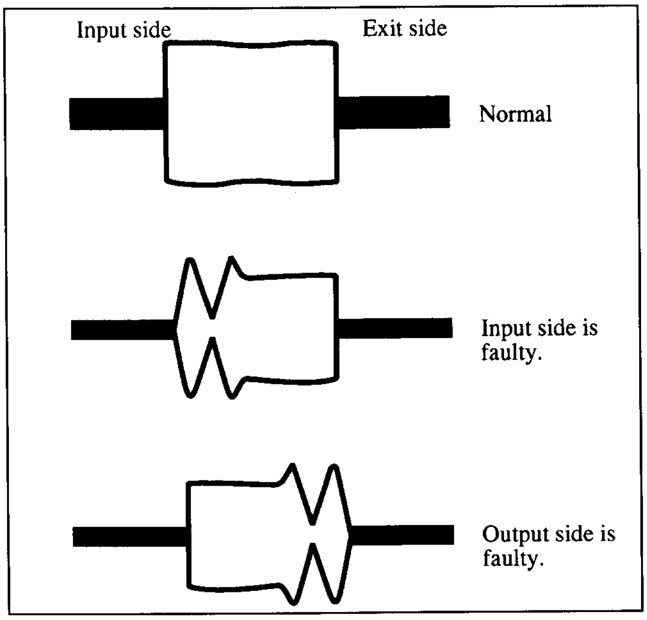


Fig. 26

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

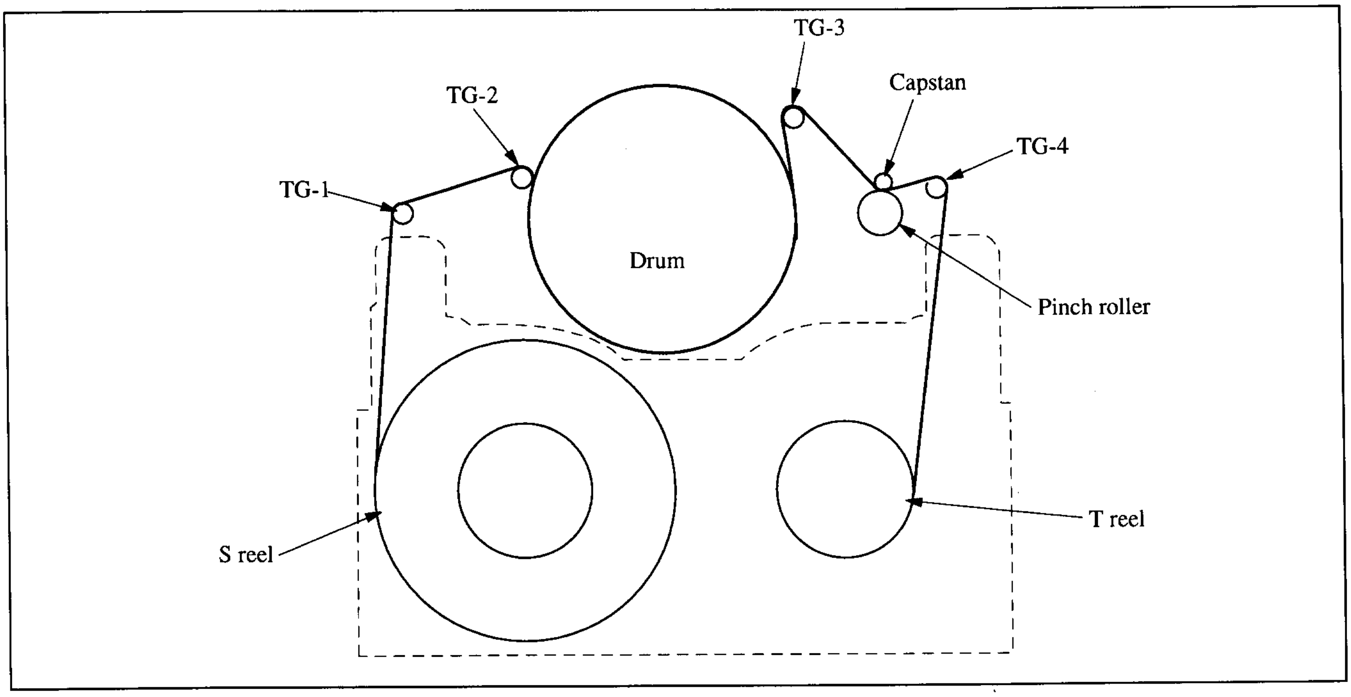


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

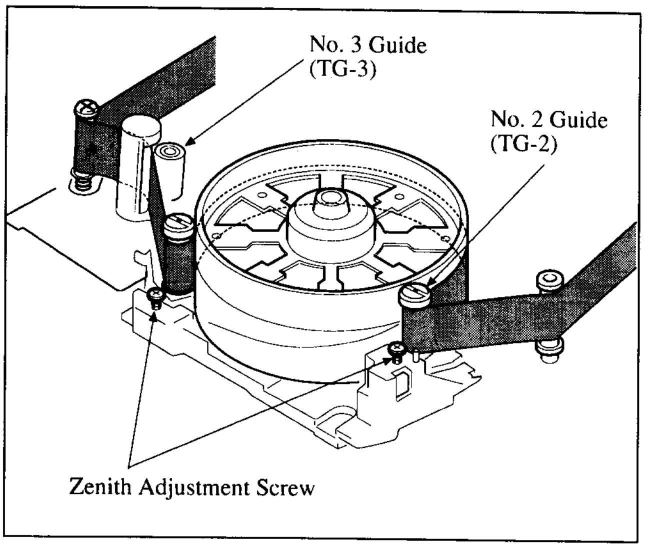


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

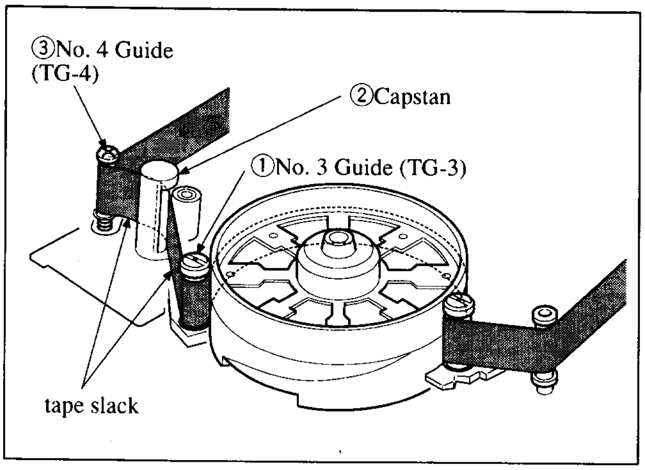


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

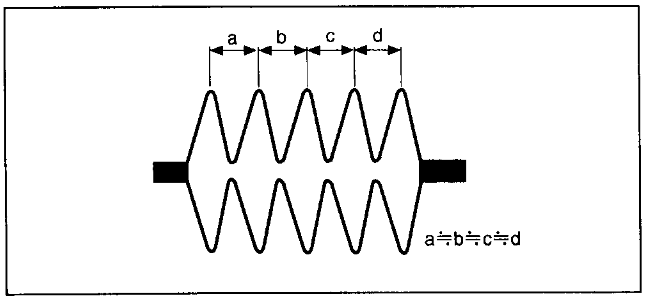


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

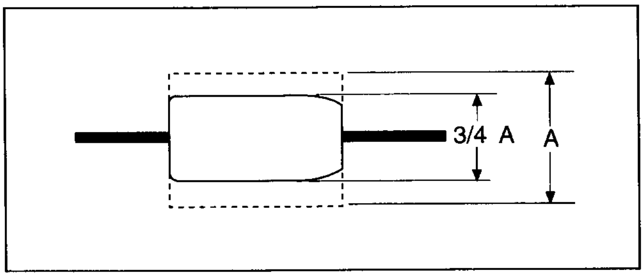


Fig. 31

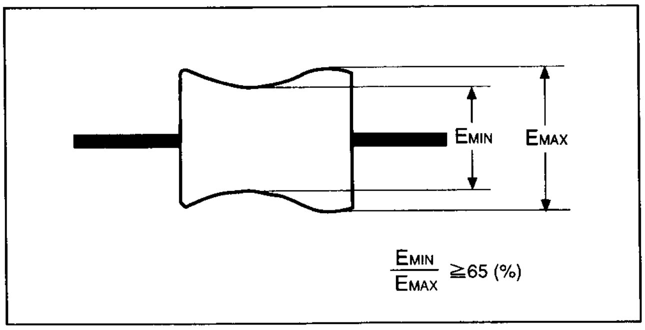


Fig. 32

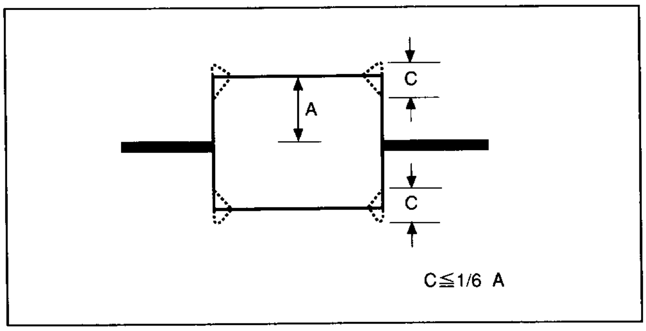


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

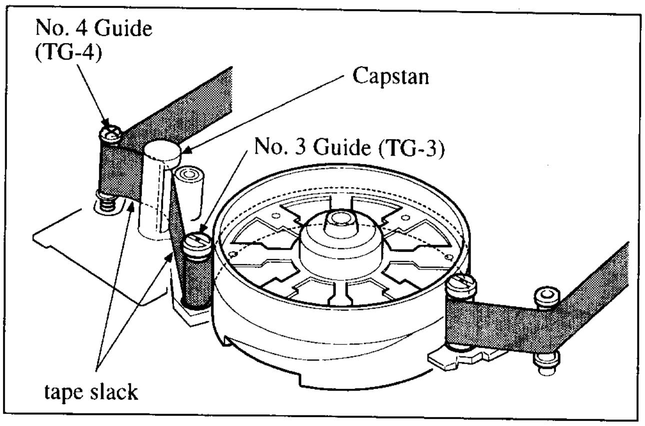


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

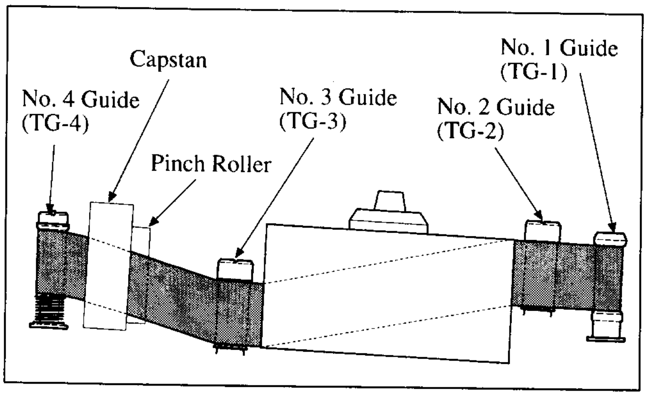
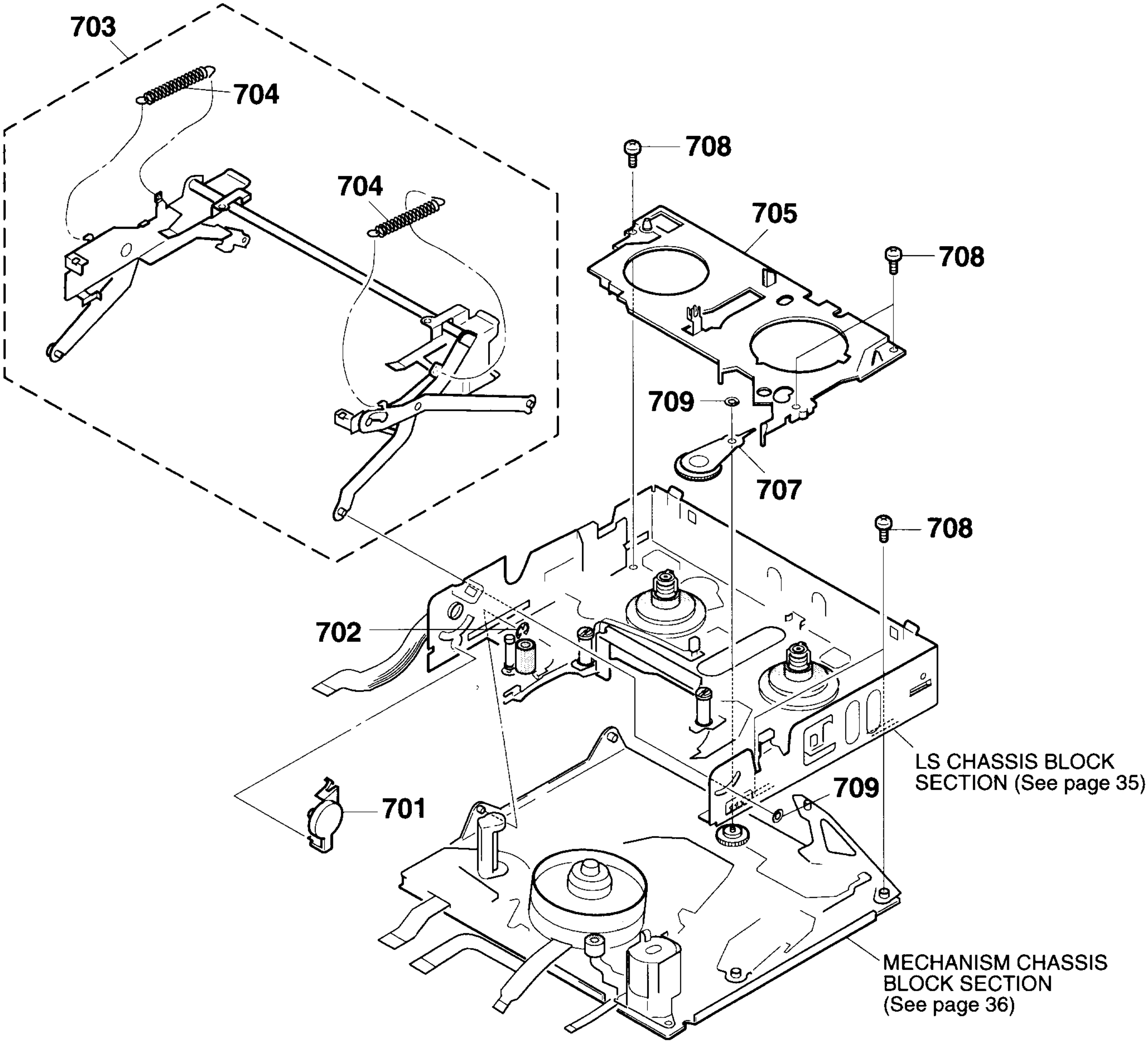


Fig. 35

5-1. Cassette Compartment Block Section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LS CHASSIS BLOCK SECTION (See page 35)
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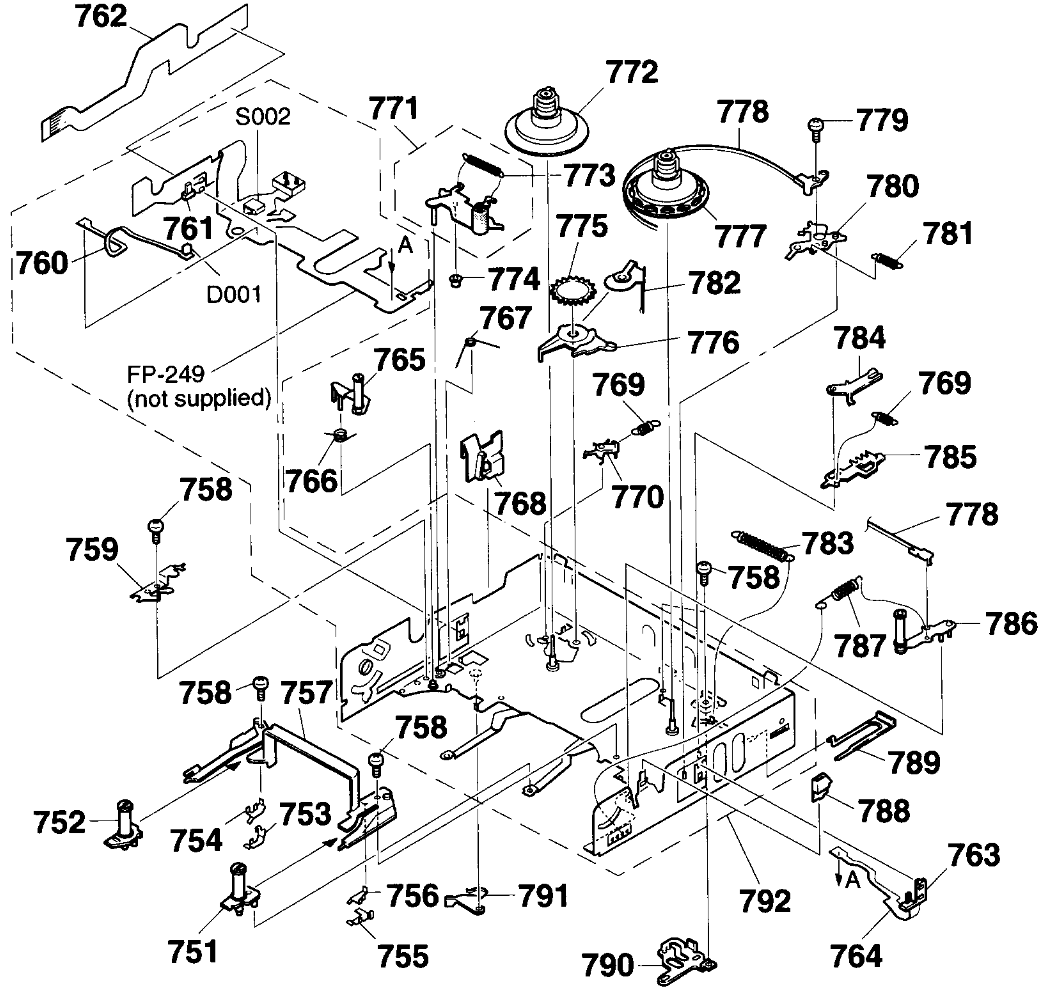
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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(not supplied)
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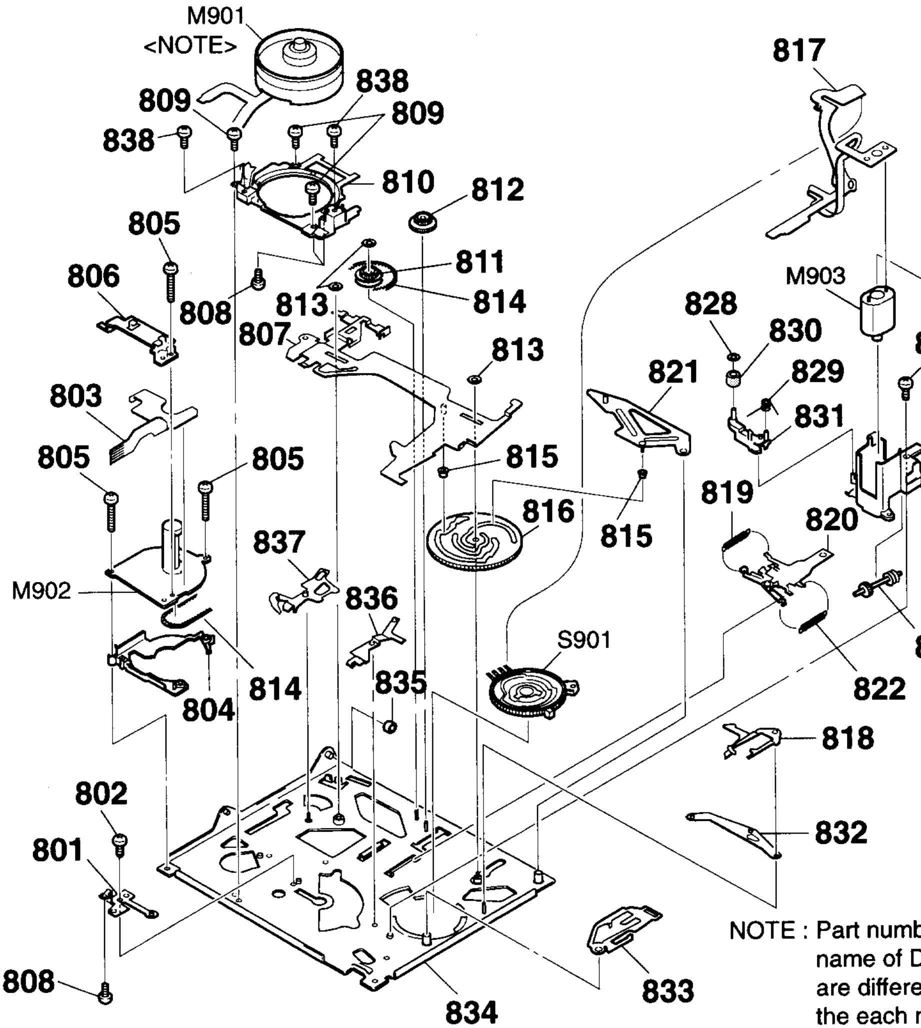
5-3. Mechanism Chassis Block Section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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.